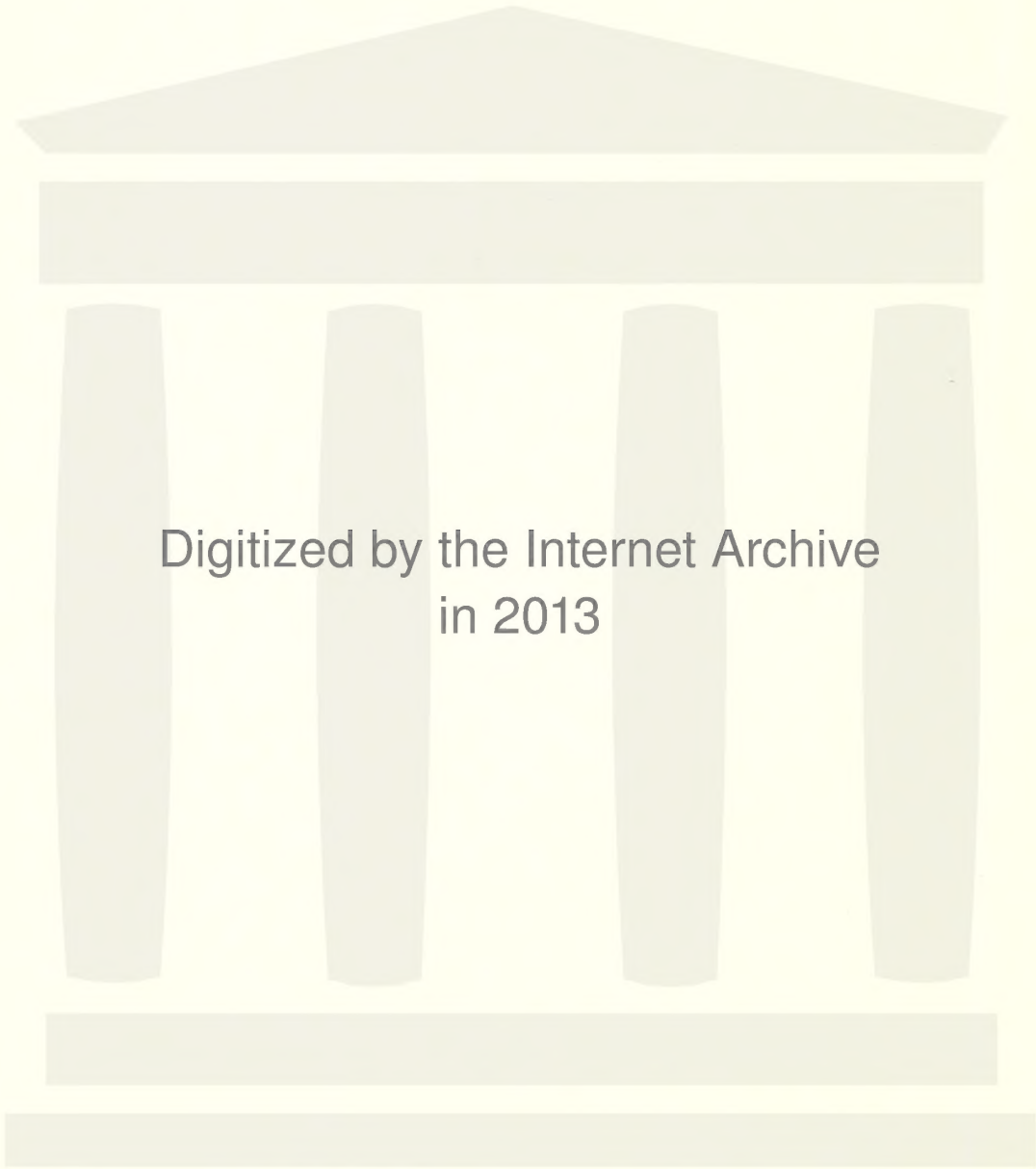
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1984

An Analysis of New York's Timber Resources

Thomas J. Considine, Jr.

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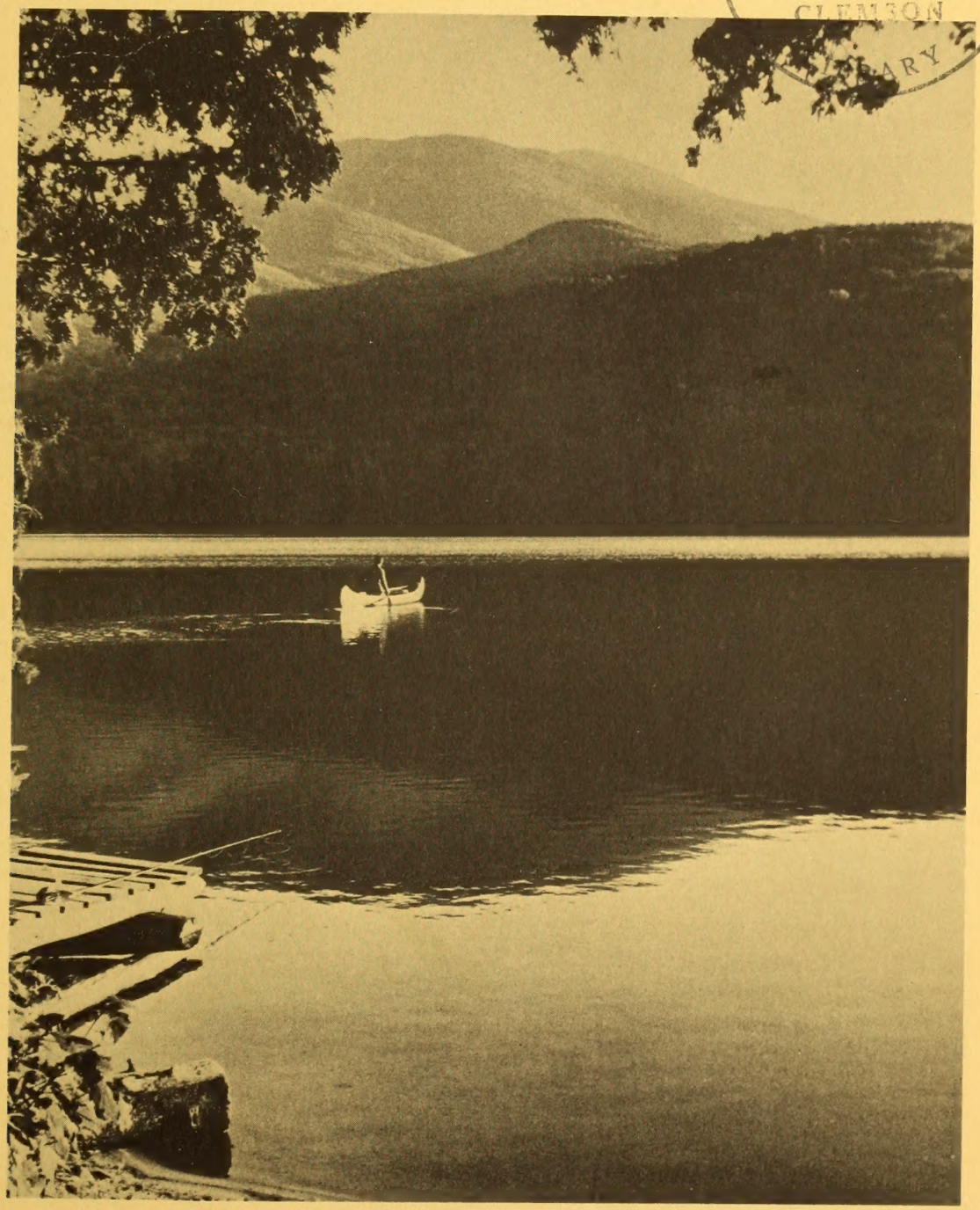

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Manuscript received for
publication 16 September 1983

Abstract

This report presents an analysis of the results of the third forest survey of New York as well as trends that have occurred since the previous surveys. Topics include forest area by ownership, stand size, and forest type; timber volume by species, location, and quality; biomass; timber products output for sawlogs, pulpwood, and fuelwood; and growth and removals. Forest area, volume, and growth and removals are projected through 2010. Also identified are forest management opportunities for increasing the production of major forest resources from New York's forests.

Cover Photo

Heart Lake in the scenic Adirondacks. Forested panoramas and a cool lake provide welcome relief from the stress of everyday life.

Courtesy: Mike Storey, Adirondack Park Agency

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Foreword

This analysis of New York's timber resource draws upon the results of three forest inventories conducted by the Forest Inventory and Analysis Unit at the Northeastern Forest Experiment Station, USDA Forest Service, in cooperation with the New York State Department of Environmental Conservation, Division of Lands and Forests.

Readers of this report should be aware of several items. First, this report will be included in the series of technical reports which make up the New York State Forest Resources Assessment. This Assessment was developed as part of a statewide forest plan for New York by the New York State Department of Environmental Conservation, Division of Lands and Forests.

To avoid duplicating published technical reports, several sections usually included in our analyses have been omitted. Readers familiar with our recent analyses will recognize that the sections on nontimber resources have been dropped. New York's nontimber resources have been very well covered in the Technical Reports published by the New York State Department of Environmental Conservation.

Second, readers should be aware of a discrepancy in some of the biomass information published in "Forest Statistics for New York" (Considine and Frieswyk 1982). See the Biomass discussion in the Timber Volume section for an analysis of this situation.

Third, data processing for the third forest survey of New York used new and improved methodologies as compared to those used for previous surveys. As a result, many estimates are more accurate than those from earlier surveys, but sometimes cannot be compared directly with earlier estimates. The section in the Appendix titled Processing the Data provides a detailed explanation of the technique refinements.

Finally, *readers are strongly urged* to familiarize themselves with the terms and definitions used in this report. See Definition of Terms in the Appendix.

A tremendous amount of data was collected during the preparation of this report. The author analyzed only what he believed were the most important aspects of New York's timber resources. Much additional data are available and further analyses possible. Should you desire further information contact: Project Leader, Forest Inventory and Analysis, Northeastern Forest Experiment Station, 370 Reed Road, Broomall, PA 19008 (telephone 215-461-3037).

Highlights

- New York is 61 percent forested. New York has 18.5 million acres of forest land, more than any other northeastern state.

- Forest-land area increased by nearly 1.2 million acres between 1968 and 1980. This increase continued a century-old trend of forest-land area increases.

- Eighty-three percent of New York's forest land, 15.4 million acres, is classed as commercial forest land. Most of the noncommercial forest land is in the state-owned forest preserve portion of the Adirondack and Catskill Parks.

- Ninety-four percent of New York's commercial forest land is privately owned. Private, nonfarming citizens own the largest amount of commercial forest land.

- New York's forests are maturing; as a result, the area covered by poletimber and sawtimber stands increased.

- Timber volumes also increased as a result of the woods' maturation. Growing-stock volume climbed 38 percent, and sawtimber volume climbed 53 percent between surveys.

- Hardwoods account for 76 percent of New York's growing-stock timber volume. Sugar maple remains the number one species in growing-stock and sawtimber volume.

- Hardwood sawlog quality is about the same as in 1968. Thirty-five percent of the hardwood sawtimber is in grades 1 and 2.

- Timber growth and removals increased between surveys. Annually, about 2.8 cubic feet of timber are being grown for every cubic foot of timber being cut.

- Thirty year projections show a slight decline in the area covered by forests but increasing timber volumes.

- While forest conditions are improving across much of New York, numerous forest management opportunities exist to further improve the condition of the woods.

Background

New York has a substantial forest empire—over 18½ million acres of sylvan settings. Sixty-one percent of the state, 3 out of every 5 acres, is tree covered. This means that New York has more forest land than any state east of the Rocky Mountains, with the exception of Georgia, Alabama, North Carolina, and Texas. That New York could have so much forest land may surprise some because the state is quite populated—second nationally in the 1980 census (U.S. Dep. Comm. 1981)—and has a substantial agricultural economy—third largest dairying state in terms of milk volume sold (Davis 1981). New York has a sizable forest resource because the state has a climate and geographical location that dictate forest cover unless the land is actively farmed or paved over (Hamilton et al. 1980).

Today's forest conditions are very much different from those in earlier times. New York's forests have not been static, they have been most dynamic. An analysis of current conditions would be incomplete without a review of those major events which shaped the state's present woods. New York's forest history has three segments: Pre-European Settlement Forests, Settlement and Exploitation, and Forest Recovery.

Pre-European Settlement Forests

Forest history for New York begins with the final retreat of the Wisconsin ice sheet that covered nearly all of New York 11,000 or 12,000 years ago. The glaciers destroyed whatever forests they covered and removed and relocated virtually all the soil as well. Many of today's soils and growing conditions are still strongly influenced by those glacial actions.

There can be no certain determination of what forests developed after the ice and snow melted, but pollen analysis from remaining, ancient bogs gives some clues. It seems that the climate remained cold for some time so that the first forests contained characteristically boreal species such as spruce, fir, and some birches (McCullogh 1939). The climate eventually entered a warming period. Pines, hemlock, and to a greater extent hardwoods such as maple, beech, and oak replaced the boreal species at many lower elevations. Indians first arrived around 7,000 B.C. and found the region almost entirely forested with a mixture of softwoods and hardwoods (Hamilton et al. 1980).

For 5,000 or 6,000 years the Indians lead a nomadic life, barely impacting the woods. From about 1,000 B.C. on, however, Indian lifestyles became increasingly complex. Two major groups of Indians emerged: the Iroquois and Algonquins. The Iroquois were actually five Indian Nations: the Mohawks, Oneidas, Onondagas, Cayugas, and Senecas. This powerful confederation existed for more than a century before the Europeans arrived. These Indians exemplified a well-developed culture. They practiced agriculture, established self government, and became masters of statesmanship. Their influence and power extended to the Carolinas and the Mississippi River.

Because of their shifting agriculture and practice of burning the woods for increased hunting and berry and herb production, Indians had a larger impact on the forests found by the Europeans than they are given credit for. They altered the species composition of the woods. Oaks and softwoods were more common than they would have been without the fires (Marquis 1975). Also, the vast expanse of virgin forest was broken up, especially in river valleys where the Indians settled. They created numerous openings and areas of immature timber (Robichaud and Buell 1973). The effect the Indians had on the forests, while noteworthy, paled next to the changes wrought on New York's forests by the European colonists and their descendants.

Settlement and Exploitation

Colonial settlements of any significance first appeared in the lower Hudson Valley around 1625, some 16 years after Henry Hudson first sailed upriver as far as he could (to present day Albany). In the period between initial colonization and the American Revolution, the spread of settlement was slow. By 1776, settlement reached up the Hudson Valley to north of Albany and west into the Mohawk Valley for some distance (Thompson 1966). Eighty percent of the state was still in forested wilderness. On the lands that were inhabited, large quantities of wood were destroyed. Some wood was used for houses, barns, furniture, fuel, and fencing, but by and large the forests were a hindrance to progress and were often cut and burned.

A modest lumber industry grew with the developing state. In early times, boards were hand hewn or cut by pit sawing. Early sawmills were crude and slow and were located in the settlements along streams so water power could drive the saw. Some export was accomplished by building rafts of logs, usually large white pines, and floating them down the Hudson and other large rivers.

Settlement and land clearing proceeded very rapidly after the conclusion of the American Revolution. The reasons were severalfold: land was given by the U.S. Government to soldiers as payment for fighting in the war, immigrants from Europe continued to arrive, and people poured in from New England seeking more fertile farmland. Through the late 1700's and into the 1800's, these waves of settlers cleared New York's forests at an increasing rate (Fig. 1).

The lumber industry grew to meet the needs of the growing Nation. A number of transportation developments greatly aided land settlement and the lumber industry. In 1813 log driving was developed. This process floated logs downstream; so sawmills did not have to move nearly as often to follow the timber supply. Larger sawmilis were built, and the lumber market expanded noticeably.

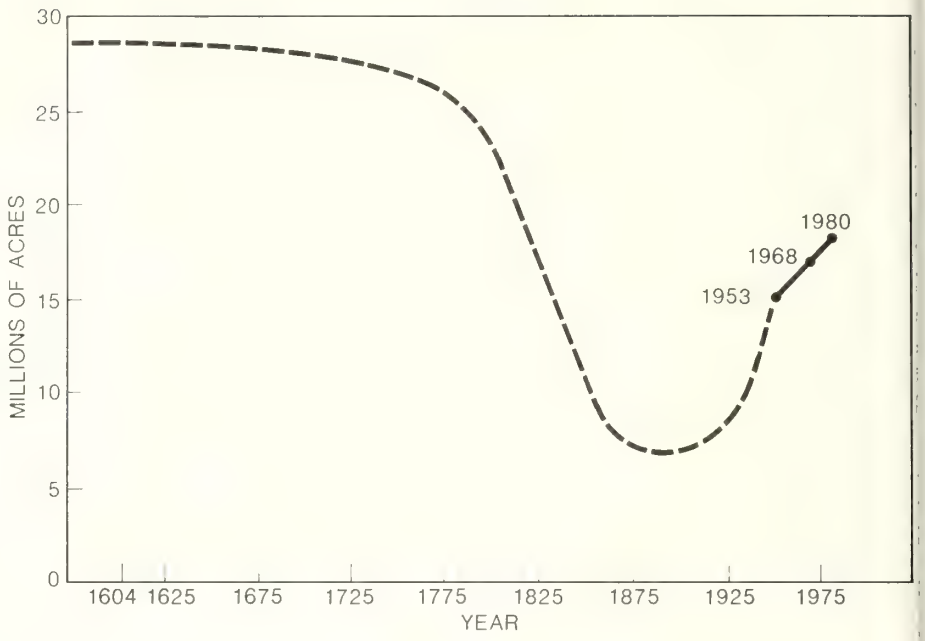

Figure 1.—Changes in forest-land area.

In the years gone by, a variety of methods were employed to get logs to the mill.

A second crucial transportation development was the digging of New York's canal system. The most famous was the Erie canal which took 8 years to finish and opened in 1825. It allowed direct water passage from Lake Erie to the Hudson River and on to New York City. Perhaps no other single event so opened up New York to development. The significance of the canal system can be seen in that many of New York's cities developed along the Erie Canal: Buffalo, Rochester, Syracuse, Utica, and Schenectady (Nutting 1927).

By the 1850's, New York's lumber industry was in full gear. Settlement farming often followed timber cutting operations. New York led the Nation in lumber production between 1850 and 1860, and Albany was a major lumber port. Softwoods accounted for 80 percent of the lumber shipped (Canham and Armstrong 1968).

The third significant transportation breakthrough was the invention of specialized logging railroad equipment. The first logging railroad was built around 1860 (Hamilton et al. 1980). Between 1880 and 1890, specially geared locomotives were developed that allowed remote areas of timber to be reached. It also allowed the cutting of hardwoods that were not cut previously because they did not float well. Logging railroads were most common in southwestern New York and the Western Adirondacks (personal communication, Hugh O. Canham, School of Forestry, Syracuse NY).

Cutting patterns changed as the railroads moved into the valleys and up the hills. Individual or scattered tree removal was often replaced by large scale clearcutting. Nearly everything was merchantable: hemlock bark for the tanning industry; logs for boards, lumber, railroad ties, furniture, charcoal, and other products; short bolts for pulp and paper mills and for the wood chemical industry; and fuelwood for many homes and power (Marquis 1975, Hamilton et al. 1980).

By 1880 land clearing and logging had taken their toll. Fires started by railroad engines and logging crews were not rare in cutover areas. Erosion was a problem on some watersheds. Forest land in 1880 reached its low point since the glaciers retreated many thousands of years before. Only 25 percent of the state remained forested. Since a significant amount of forest land was left in the high peaks of the Catskills and Adirondacks, certain areas of the state were almost totally deforested.

Forest Recovery

The time span from the 1880's to the present might best be titled the period of forest recovery, even though timber harvesting remained heavy into the early 1900's. During the period of forest recovery, a number of negative trends have been halted or reversed, and the woods have grown back. Although economic reasons were certainly involved, the politics of the forest problem played no small part in reversing the decline of the resource.

Public concern over the diminishing quantity and quality of forest land grew markedly during the 1880's. In 1885, the forerunner of today's Department of Environmental Conservation was created by the State legislature. It was called the Forest Commission, and its basic job was to protect what forest land was left, especially from fire.

The culmination of the attempts to remedy the forest degradation problem came in 1892 with the creation of the Adirondack Park. In 1894, an amendment to the State's constitution decreed that the state-owned forest lands within the boundary of the Park were ". . . to be forever kept as wild forest lands." The amendment was an attempt not only to end the damaging cutting practices of the time but also to protect the quality and quantity of the water supplies coming out of the mountains. These water supplies were critical to the canal system and to most of the state's major rivers including the Hudson, Mohawk, and St. Lawrence. Boundaries for the Catskill Park were set up soon after.

Changing economics in farming also reversed the depletion of the forests. In the late 1800's, farming became more mechanized, which required reasonably level land and larger farms. New York farms tended to be small and many were on hills; some quite steep. These farms were at a disadvantage compared to farms in other regions of the country.

The Industrial Revolution created city jobs that were an attractive alternative to the hard life of farming marginal land. The combined effect of these changes was to push land out of agricultural use and back into forest. The reversion process averaged about 40,000 acres per year between 1880 and 1920 when a nationwide agricultural depression hit the state and accelerated the rate of farm land abandonment. Through the 1920's and the Great Depression of the 1930's, the average rate of abandonment was more than 270,000 acres per year (Fedkiw 1959). The steepness of the slope of the line in Figure 1 around the 1920's and 1930's graphically represents the rapid increase in forest land. Many of New York's currently valuable forests originated during this period.

In 1928 and 1929 because of the large amounts of tax delinquent, abandoned farm land, the state and county governments undertook an aggressive land purchase and tree planting program. The intent was to return the lands to full timber production in as short a time as possible. Most of the trees planted were conifers such as red, white, and Scotch pine and Norway spruce. The State acquired the majority of today's more than 700,000 acres of State forests during the period between 1928 and 1943.

In 1926 the State recognized the value of protecting wildlife habitat and allowed the purchase of land for that purpose. To date, Fish and Wild-

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life Management Areas cover more than 150,000 acres, most of which are forested.

The tapering off of the state's abandoned land acquisition program around the end of World War II was tied to the increased interest by many private citizens to own forest land. In the decades following the war, many people gained successively higher levels of disposable income and leisure time. Seeking to escape the suburban and city life, many bought forested tracts. Since they typically owned the land for esthetic reasons, they tended to plant some trees and not cut much timber. In essence, the inactivity of many of the private landowners allowed the forests to continue growing back.

It was against this general framework of a century of forest land increases and forest recovery that we conducted our third forest survey. The common thread linking New York's forest history and many of the survey findings is change; change based on the actions of man and nature. Most of this report will be devoted to analyzing the forces of change and what they mean with respect to New York's timber resource.

Forest Surveys of New York

As mandated by the Renewable Resources Research Act of 1978 and the Renewable Resources Planning Act of 1974, the USDA Forest Service conducts periodic surveys of the Nation's forest resources to keep abreast of current forest conditions, monitor resource trends, and project future resource supplies. These acts repealed the previous enabling legislation titled the McSweeney-McNary Research Act of 1928.

New York has experienced three USDA Forest Service forest surveys; all done in cooperation with the New York State Department of Environmental Conservation. The first survey was conducted between 1949 and 1952 and was dated 1953 (Armstrong and Bjorkbom 1956). The second survey was conducted between 1966 and 1968 and was dated 1968 (Ferguson and Mayer 1970). The most recent survey was conducted between 1978 and 1979 and dated 1980.

Some of the results of the latest survey have been published in 96 statistical tables (Considine and Frieswyk 1982). A copy of the statistical report would be useful in following this analysis.

Eight Geographic Units

To provide regional as well as statewide information, New York was divided into eight geographic sampling units (Fig. 2). The unit boundaries were drawn to enclose reasonably distinct physiographic regions with fairly homogeneous forest conditions. Since the unit boundaries are identical to those of the 1968 survey, comparisons between the two surveys at this level are valid for timber volume and forest area (see Tables 92-96 in Considine and Frieswyk 1982).

Forest Area

New York's net land area, 30.2 million acres, is covered by four major land use classes (Fig. 3). In ascending order of area covered, they are: pasture—1.9 million acres (6 percent), crop and other farmland—4.8 million acres (16 percent), urban and miscellaneous lands—5.0 million acres (17 percent), and forest land—18.5 million acres (61 percent).

The large amount of forest land may surprise those familiar with the Gotham City and the state's other urban landscapes. However, the state is quite similar to its northeastern neighbors with respect to its ample forest base. Massachusetts is 51 percent forested, Pennsylvania is 58 percent forested, and Connecticut is 60 percent forested.

Forest land is not evenly distributed across the state (Fig. 4). As often occurs in other states, increasing amounts of forest land in New York are associated with increasingly steep topography. The most heavily forested counties are in the mountainous Adirondack (northern) and Catskill (southern) regions. Three of the Adirondack counties—Essex, Hamilton, and Warren—are over 90 percent forested. Other than the five boroughs of New York City, the most lightly forested counties are on Long Island and the relatively flat northern half of western New York; a physiographic region known as the Lake Plain (Fig. 5).

New York's forest land is broadly classified as either commercial or noncommercial. Noncommercial forest land accounts for 3.1 of the 18.5 million forested acres. While noncommercial lands are only 17 percent of the state's forested area, New York has a tremendous amount of noncommercial forest land in relation to most other states. Noncommercial forest land is composed of productive reserved, unproductive, Christmas tree plantation, and urban forest land (Fig. 6). The term noncommercial does not imply that the forest land has little value, rather it refers to the infeasibility of timber management on the land.

Noncommercial forest land is legally or administratively withdrawn from timber harvest or is not capable of growing at least 20 cubic feet per acre per year (about a quarter of a cord) of wood suitable for forest industry. Most of New York's noncommercial forest land is owned by the State of New York and is classed as productive reserved. It is capable of growing enough wood to qualify as commercial but has been withdrawn from timber harvest.

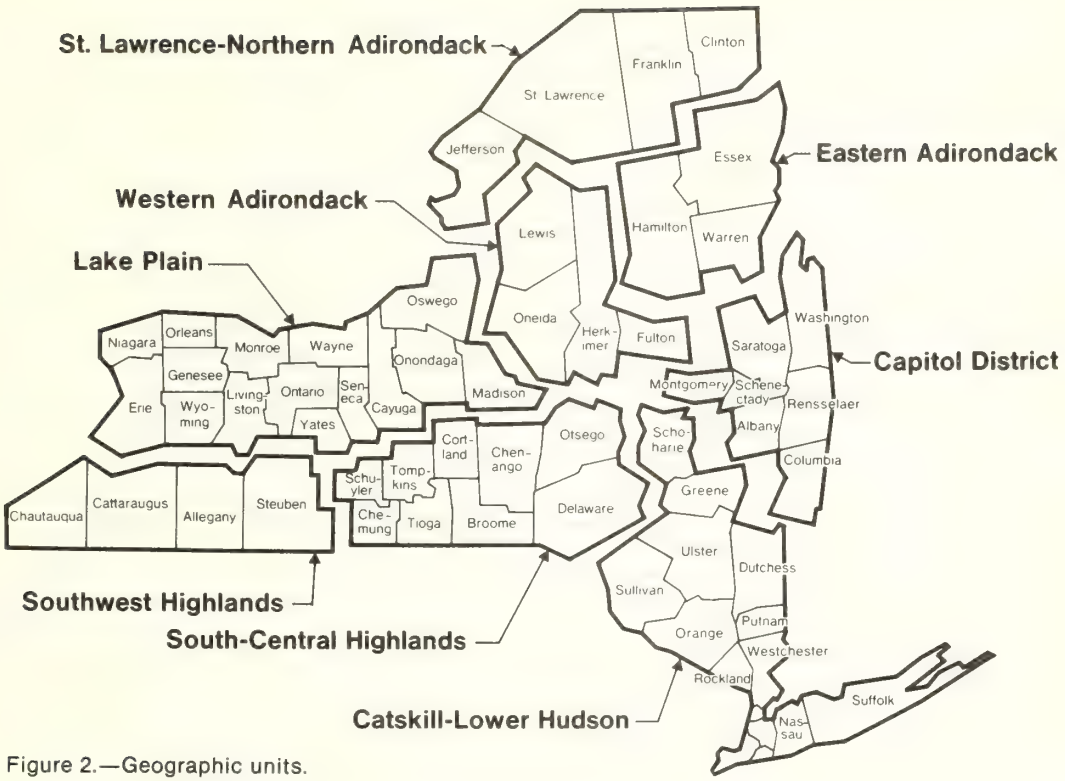

Figure 2.—Geographic units.

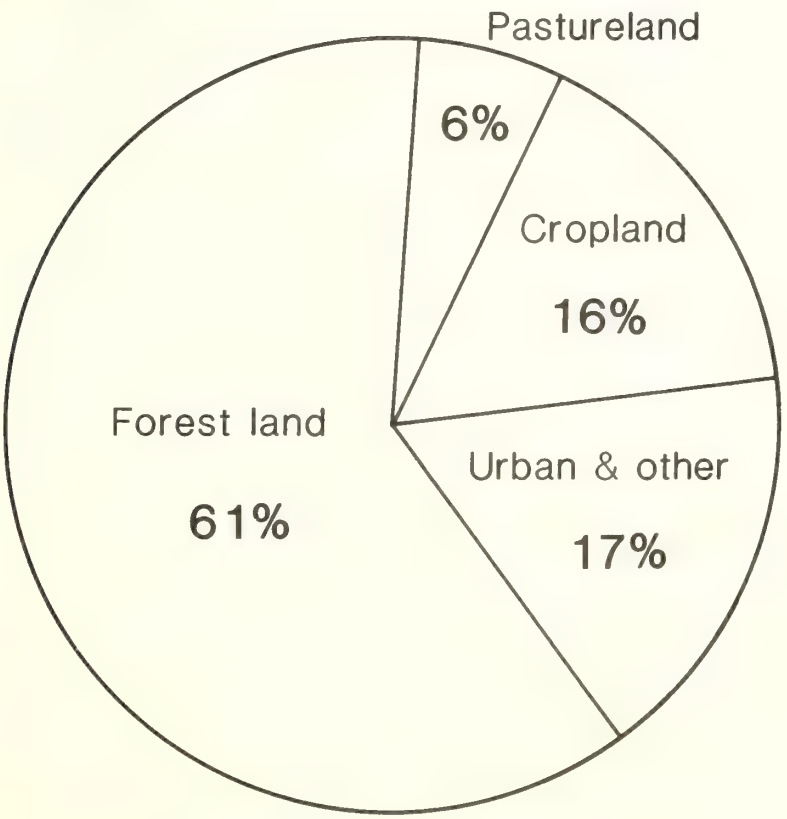

Figure 3.—Four major land uses, 1980.

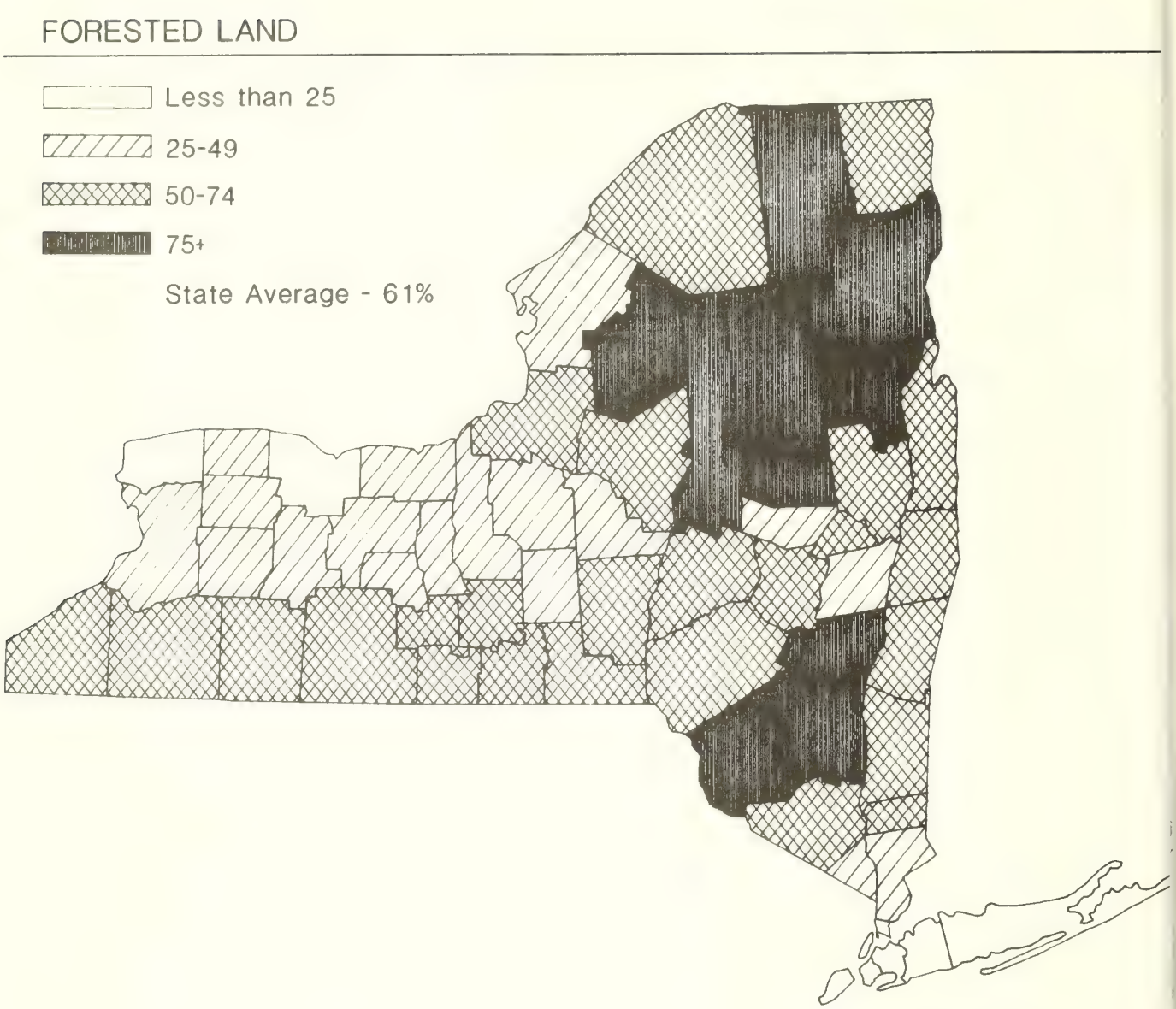

Figure 4.—Percentage of forest land, by county, 1980. (State average = 61 percent)

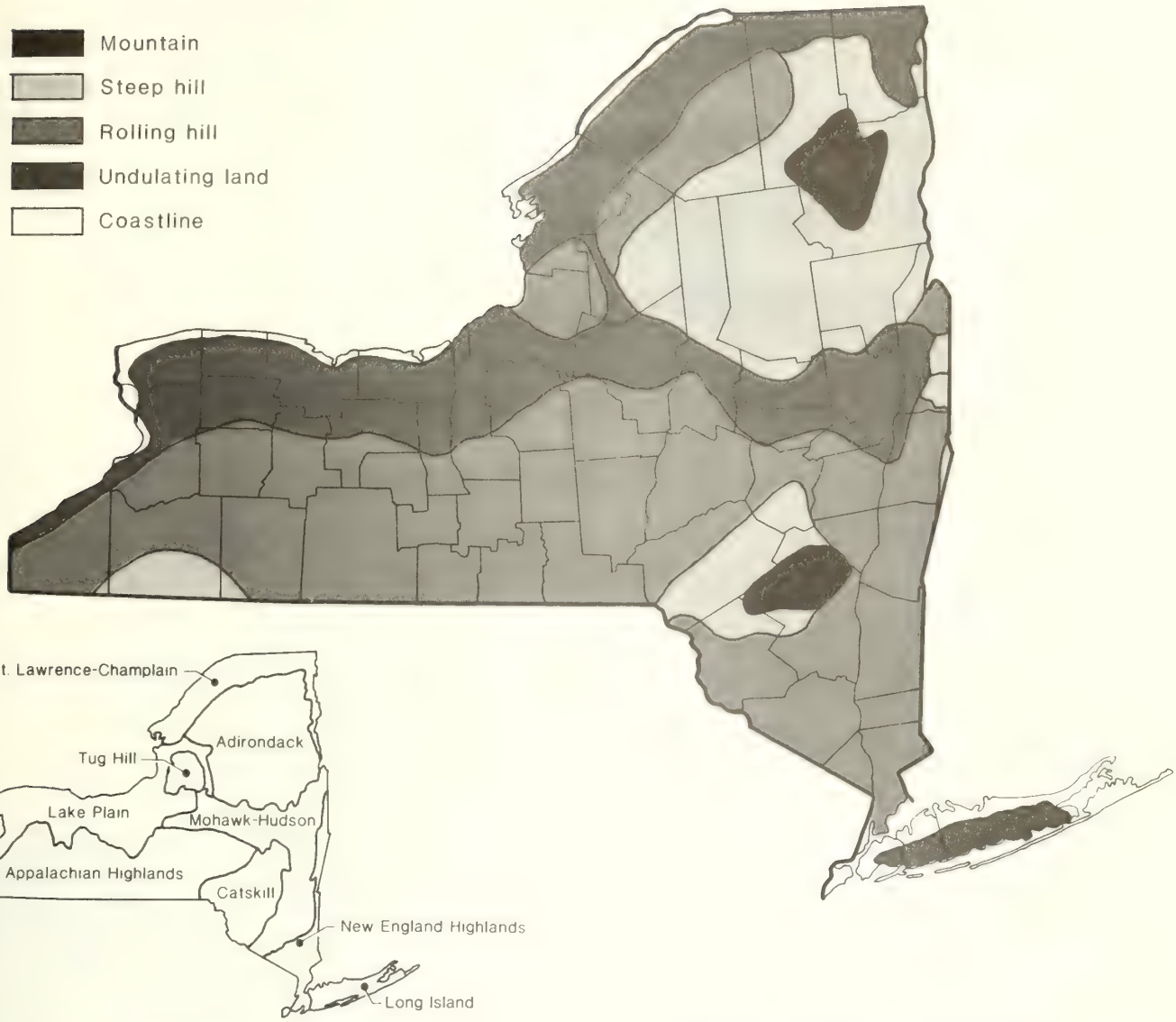

Figure 5.—Physiographic regions.

Courtesy: New York State Department of Environmental Conservation, Division of Lands and Forests

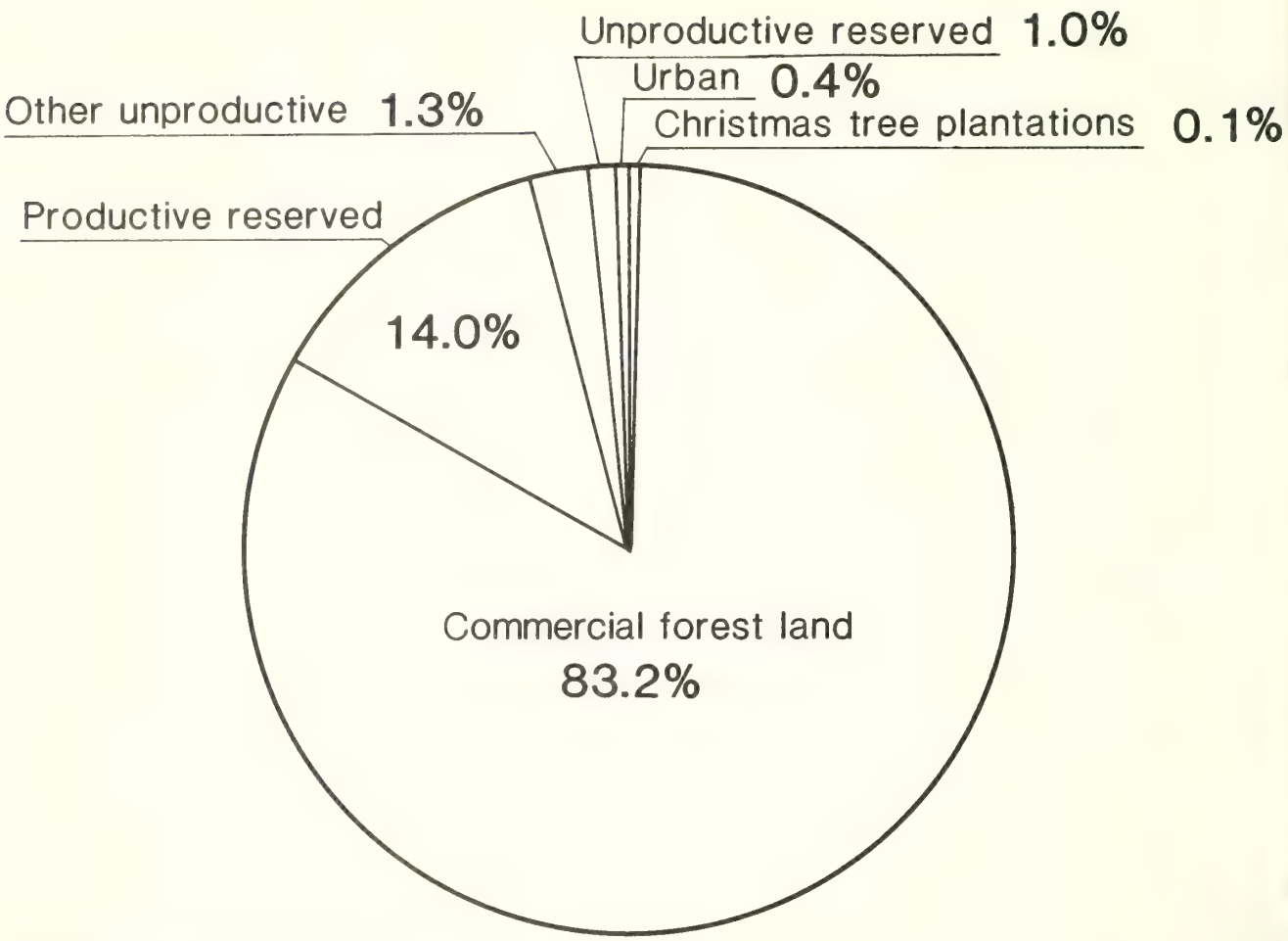

Figure 6.—Percentage of forest-land components, 1980.

The vast majority of the productive reserved land is in the world famous Adirondack and Catskill Parks. However, not all the forest land within the "blue lines" (the map boundaries of the Parks) is noncommercial. Of the more than 6 million acres in the Adirondack Park, about 40 percent is state owned and reserved while about 60 percent is privately owned. Virtually all of the privately held forest land is classed as commercial forest land (Fig. 7). In the Catskill Park the same proportions apply to the 690,000 acres within its boundary.

Urban forest land is a new category to the survey. It is forest land that would be classed as commercial except that it is surrounded by residential, commercial, or industrial development. Even though the five boroughs of New York City and Nassau County were not included in this forest survey, almost 69,000 acres of urban forest land were found outside of these heavily populated areas.

Though the noncommercial forest lands cannot be counted on for timber supplies, it is readily apparent they are often very valuable for recreation watershed protection, and wildlife habitat. New York's forests are similar to many Northeastern forests in that nontimber benefits derived from some forest stands exceed the benefits derived from timber.

Commercial forest land is the dominant forest land class, covering 15.4 million acres and accounting for 83 percent of New York's forest land. It is the land use that this survey was designed for. Commercial forest land provides many nontimber benefits in

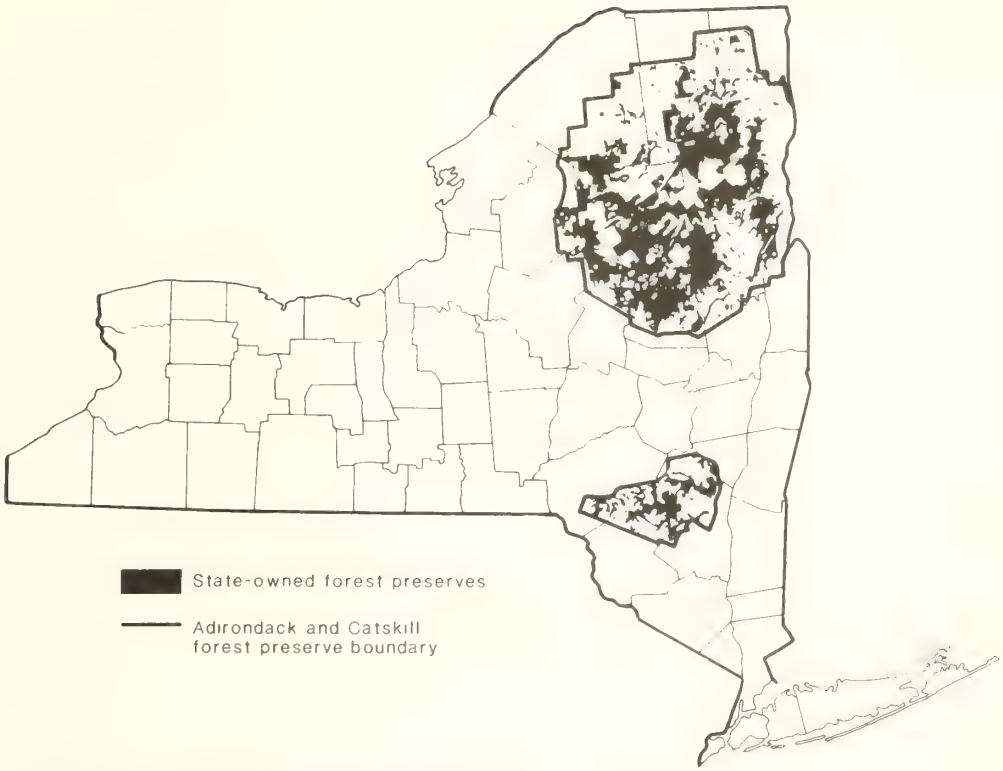

Figure 7.—The Adirondack and Catskill Preserves.

Courtesy: New York State Department of Environmental Conservation, Division of Lands and Forests

atershed protection and recreational opportunities are important benefits of New York's woodlands.

addition to yielding the timber products that are so valuable for providing jobs in the wood industries and heat for people's homes.

Since commercial forest land accounts for so much of New York's forest land, its distribution pattern generally follows the total forest distribution shown in Figure 4. There are some notable exceptions in the heavily forested Adirondack and Catskill regions (Fig. 8). The reason for the disparity in the shading patterns for these counties is quite simple. Although only 17 percent of New York's forest land is noncommercial, it is quite heavily concentrated in the Adirondacks and Catskills. When the noncommercial land is subtracted from the forest land base, the counties in these areas suffer a noticeable drop in forest cover. For example, Hamilton county is 98 percent forested; clearly the most heavily forested county in the state when all forest land is included. But, when the reserved lands are subtracted, its percentage drops to 34, well below the 51 percent statewide average for commercial forest land.

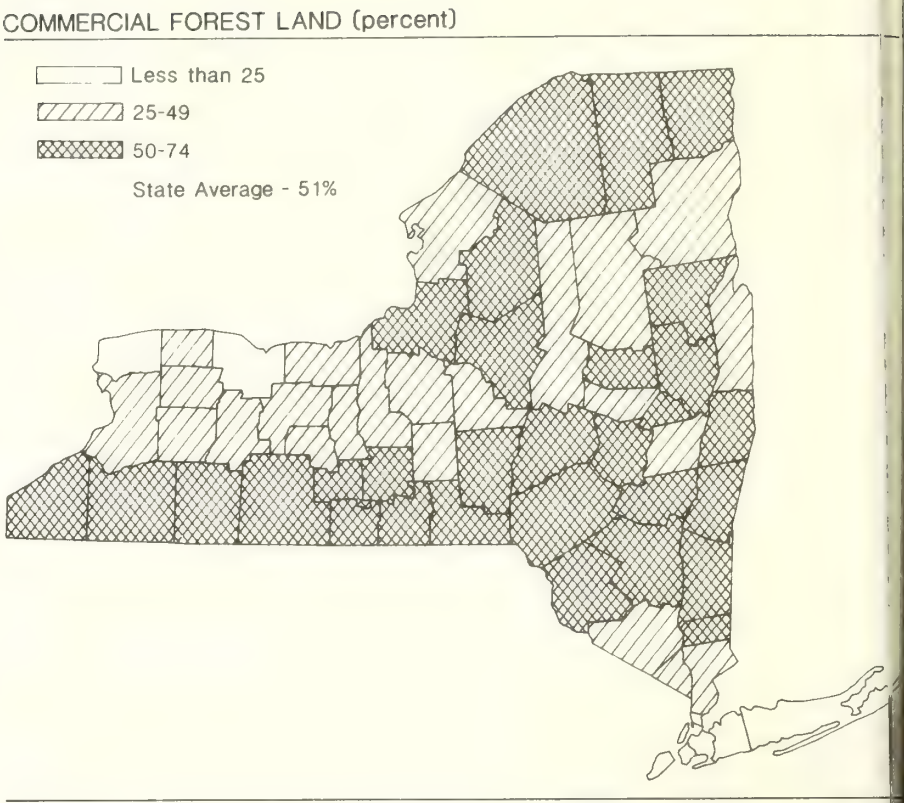

Figure 8.—Percentage of commercial forest land, by county, 1980. (State average = 51 percent)

Trends

The increasing forest land area trend which started in the late 1800's continued during the period between the first and second surveys (1950–68) and between the second and third surveys (1968–80). Meaningful analysis of the trends between surveys can be accomplished only if the data have been computed the same way.

In processing the 1980 data, we employed an improved method of calcu lating forest land area estimates. Extending the procedure to recalculate th 1968 and 1950 estimates provided improved and directly comparable estimates for those years. The estimates of forest area for the three surveys are

Forest land	1950	1968	1980
	Acres		
Commercial	12,621,600	14,414,000	15,405,80
Noncommercial	2,448,000	2,902,600	3,100,40
Total	15,069,600	17,316,600	18,506,20

Forest land increases slowed in he 1968-80 period as compared to he 1950-68 period. The average an- ual increase between 1968 and 1980 vas 99,000 acres versus 125,000 be- ween 1950 and 1968. A slowing rate f increase has been the rule for a umber of decades and is graphically een in the flattening out of the curve n Figure 1.

Commercial forest land exhibited n increase of nearly a million acres etween 1968 and 1980. The increase vas the net effect of a gain of about .4 million acres of new forest land rom abandoned agricultural land and loss of slightly over 400,000 acres f commercial forest land to urban nd other land uses (45 percent), oncommercial forest land (43 per- ent), water (7 percent), and farmland percent).

Increasing commercial forest land was not the rule in all parts of the state. Nearly two-thirds of the million acre increase took place in two units: the Lake Plain and the South-Central Highlands. Despite its big increase, the Lake Plain remains the most lightly forested unit. The geographic units ranked from greatest to least commercial forest land (CFL) increase, 1968-80, are:

Unit	Thousand acres	Percent change	Percent of land area in CFL, 1980
Lake Plain	353.9	20	36
South-Central Highlands	274.0	13	60
Capitol District	125.0	10	53
St. Lawrence-Northern Adirondack	97.8	4	60
Western Adirondack	83.1	6	55
Southwest Highlands	63.6	4	56
Catskill-Lower Hudson	12.8	1	52
Eastern Adirondack	−18.4	−1	45

The largest source of new forest land was abandoned and reverting pastureland.

The decrease in the Eastern Adirondack unit was due mostly to the sale of a large block of commercial forest land to the State of New York and subsequent transfer to the productive reserved category. To the south, even though the Catskill-Lower Hudson unit posted a miniscule gain, over half the counties lost commercial forest land. In the counties close to New York City, forests were lost to land development or were reclassified as urban forest.

Looking at the land use changes that resulted in the commercial forest land increase provides a striking illustration of how the fortunes (or misfortunes) of one sector of the economy greatly influence a seemingly unrelated sector (Clawson 1981). In New York, the rise in forest land area in recent decades can be directly correlated with changes in the farm community, and in particular the dairy sector.

Since World War II, the farmin industry nationwide has undergone major revolution. The effects on th Northeast and New York in particul have been substantial. Between 19 and 1978, New York's farmland declined by 6½ million acres or 41 pe cent (Fig. 9) (U.S. Dep. Comm. 1981 It is no coincidence that forest lan rose 3.4 million acres (23 percent) during the same period.

Many factors are responsible f the change in farming in New York. They include: inflation, capital cost for new technologies, income and estate taxes, nonfarm employment opportunities, comparatively poor so and transportation costs (Schertz et al. 1979).

To summarize, the increasing application of new technology and machines dramatically improved pr ductivity. It gave large farms an ecc nomic advantage over small farms based on their ability to distribute th fixed costs of the innovations over a larger production base. This trend pu New York and New England at a dis advantage because taxes, inflation, and developmental pressure were working to keep the average farm small. Inroads into traditional New York markets were made by souther and western farms that took advantage of relatively inexpensive transportation, labor, and lower taxes.

Dairying was and still is an important segment of the state's agricultural community though it has bee hit hard by the shakeout. Running a dairy farm is no simple or inexpensive task, and these difficulties are reflected in the continuous slide in the area covered by pasture (Fig. 9).

The largest cause of forest land loss was land clearing for urban or suburban development.

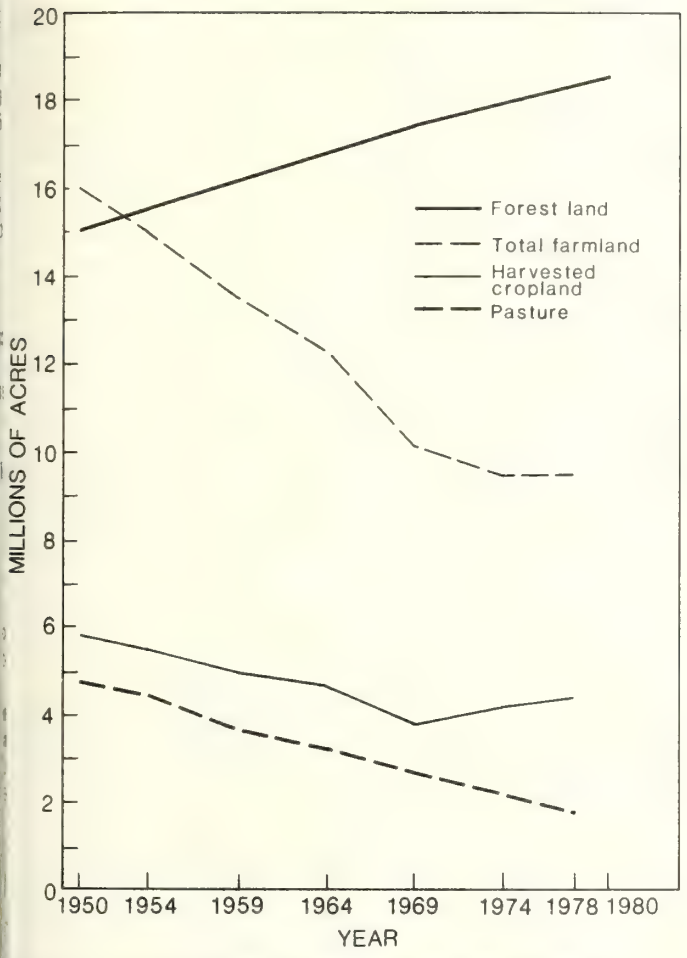

Figure 9.—Agriculture and forest-land use trends, 1950-80.

What does the future hold for the land use balance of New York? If past trends continue, we will see a further erosion in the dairy industry and in the area covered by pasture. A large uncertainty, and one that could change the picture considerably, is the future cost of energy. Higher energy prices could make New York's farms more competitive with farms in other parts of the country. New York is closer to many major food markets, and some southern and western farms depend greatly on energy-intensive irrigation.

Ownership

New York has over 500,000 forest-land owners. About 90 percent of the owners are individuals. The other 10 percent include forest products firms, government agencies, hunting and fishing clubs, water companies, and a variety of businesses and associations. New York's many owners of commercial forest land can be grouped into five ownership classes:

Geographic unit	Ownership class					
	Public	Forest industry	Farmer	Corporate	Misc. private	Total
	Thousand acres					
Lake Plain	110.4	7.7	915.5	61.6	1,069.2	2,164.4
Southwest Highlands	119.9	22.9	553.5	79.7	956.5	1,732.5
South-Central Highlands	241.7	81.3	793.8	80.0	1,220.1	2,416.9
St. Lawrence-Northern Adirondack	179.3	361.5	581.3	271.1	1,205.2	2,598.4
Western Adirondack	163.8	179.6	330.0	35.8	845.6	1,554.8
Eastern Adirondack	16.6	351.5	46.8	185.8	667.3	1,268.0
Capitol District	50.9	12.3	326.1	74.2	931.3	1,394.8
Catskill-Lower Hudson	96.4	17.9	398.6	329.8	1,433.3	2,276.0
Total	979.0	1,034.7	3,945.6	1,118.0	8,328.5	15,405.8

The miscellaneous private class is mostly individuals who are not farmers, but it also includes some unincorporated clubs and partnerships. Not only does this class own more forest land than any other group, its been the only one increasing its proportionate share of the ownership pie.

Farmers are the second largest block of forest-land owners. They own about 26 percent of the total but, as measured by Census of Agriculture data, farmers have owned successively less woodland in the years following World War II. Not only has farm woodland declined, but the total acreage of land in farms has declined as well.

Around the time of the first forest survey, farmer-owned woodland probably exceeded that owned by the miscellaneous private class. But with farm economies being squeezed from several sides and urban and suburbanites with more disposable income and leisure time, one trend has been that of some farmers selling or abandoning land to nonfarm owners.

Forest industry lands are heavily concentrated in the three Adirondack units. This means industry's presence, which is diluted at the state level, is much more pronounced in the Adirondacks where it owns about 16 percent of the commercial forest land total. Forest industry's land holdings have not changed much over the last 25 years, but because total commercial forest land increased, industry's proportionate share of the state total declined from 10 percent in 1953 to 7 percent in 1980.

Public agencies own the smallest amount (6 percent) of commercial forest land of any of the five ownership classes. This does not include the Preserve portions of the Adirondack and Catskill Parks. With three-quarters of the public land, the State is the biggest public landowner. State forests account for 70 percent of the State lands, while most of the remaining 30 percent is in State Wildlife Management Areas. The South-central Highlands Unit has, by far, more State commercial forest land than any other unit. Public lands increased by about 100,000 acres between the second and third survey largely because of purchases for wildlife management areas.

Because the private forest landowners are so numerous and important, an ownership study was conducted in conjunction with the forest survey. The purpose of the ownership study was to assess and analyze landowners' characteristics and attitudes (Birch 1983). Among the study's findings was a skewed pattern in the ownership size classes (Fig. 10). Those owning less than 9 acres comprise the majority of New York's forest land owners (53 percent), yet their total holdings are only 6 percent of the commercial forest land. At the other end of the scale are the owners with holdings of greater than 500 acres. They account for 0.3 percent of the owners yet hold 22 percent of the commercial forest land. This group includes the large forest industries.

The study also revealed the difficulty of describing the "typical" landowner. Retired was the largest employment category but only accounted for 20 percent of the owners. Over 40 percent of the owners are between 45 and 64 years old, but another quarter of them are between 25 and 44, and another quarter are over 65. The most frequent income category was under $10,000 annual income, but almost as frequent were owners making over $30,000 annually.

One characteristic of the private owners that does stand out is the relatively short period of time that they have owned forest land. Over a third of the owners acquired the land since 1970, and almost another third acquired the land between 1960 and 1970.

While benefits other than timber production are the primary reason most people own forest land, they are still usually willing to harvest timber. Nearly two-thirds of the owners are willing to cut timber sometime in the future. New York's diverse and sizable group of private landowners will be an important force in the future of the Empire State's forests.

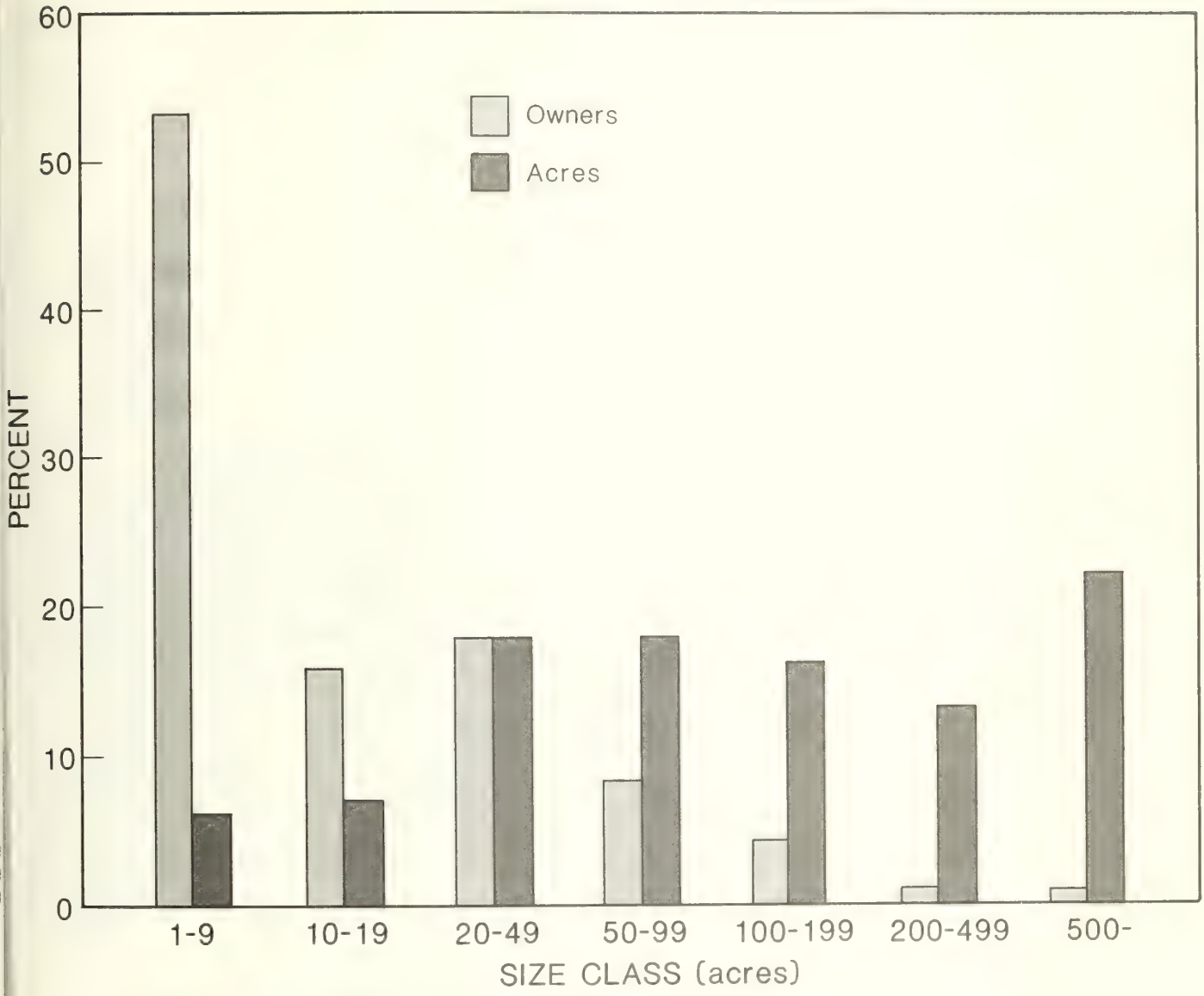

Figure 10.—Percentage of private ownerships, by size class, 1980.

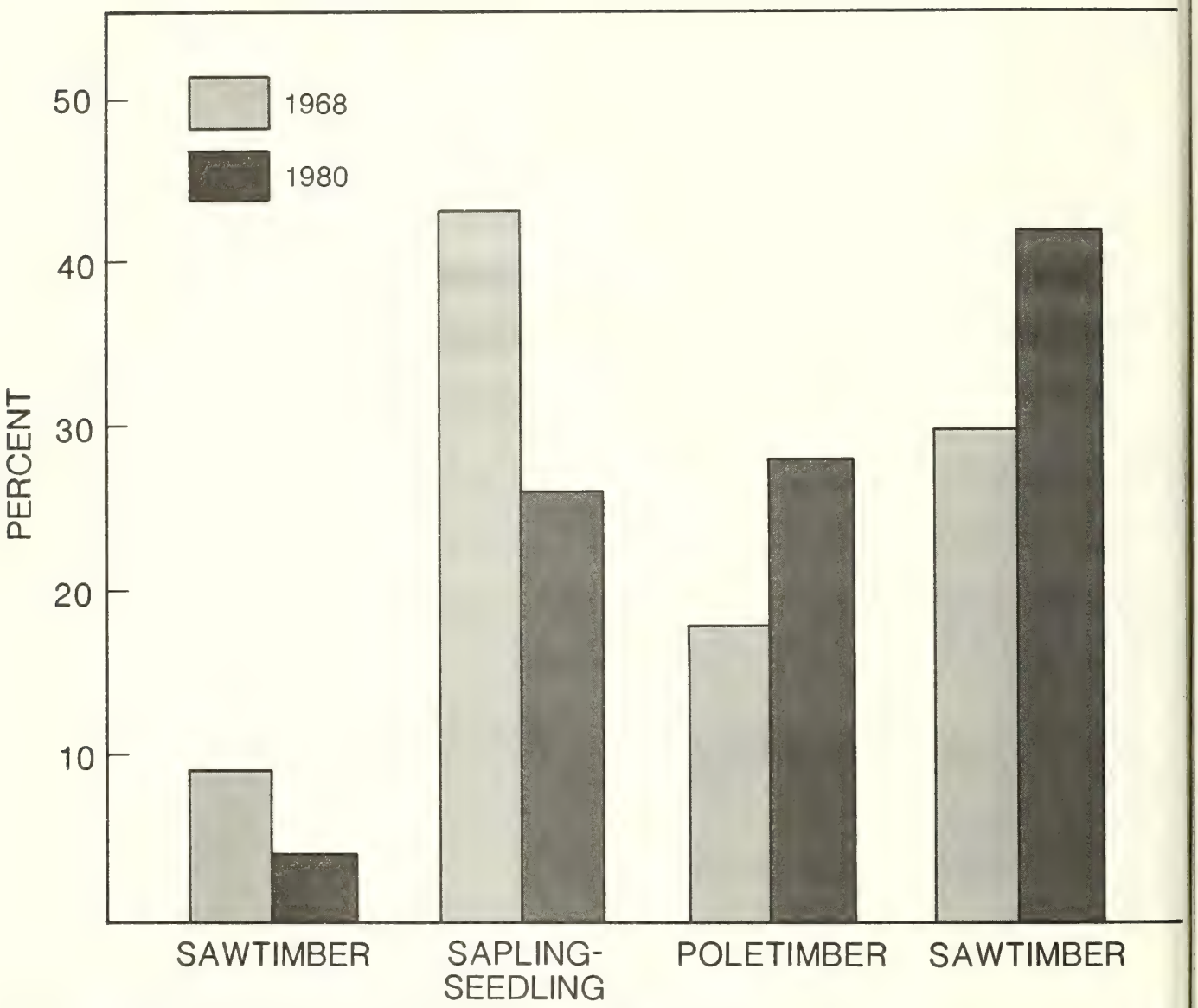

Figure 11.—Percentage of stand-size class on commercial forest land, 1968 and 1980.

Stand Size

New York has a more mature forest than it has had in many decades. Supporting evidence includes an increase in the area covered by older stands (pole and sawtimber) and a decrease in less mature sapling-seedling and nonstocked stands (Fig. 11). Stand-size data from the first survey should not be compared with the last two surveys because stand size was calculated differently during the first survey.

Sawtimber stands are the dominant stand size in New York, covering 42 percent (6.4 million acres) of the commercial forest land. Sought after because of their higher timber volumes and lower unit harvesting costs, sawtimber stands are a valuable asset in sustaining and attracting forest industries. Because they are easier to move in and are perceived to be more attractive, sawtimber stands also are valuable for recreational pursuits such as hiking, camping, and cross-country skiing (Brush 1979).

In decreasing order of area covered, the other stand sizes are: poletimber (28 percent), sapling-seedling (26 percent), and nonstocked (4 percent). At the time of the 1968 survey, sapling-seedling stands were the dominant stand-size—43 percent of commercial forest land (6.2 million acres). Again in descending order, the proportion of commercial forest land covered by other stand-sizes in 1968 was: sawtimber (30 percent), poletimber (18 percent), and nonstocked (9 percent).

The area covered by seedling-sapling stands dropped as New York's forests continue to mature.

In terms of acreage changes, remember that commercial forest land increased by nearly a million acres. This new forest land entered either the nonstocked or sapling-seedling categories. Despite the influx, nonstocked stands showed a net decline of over 700,000 acres and sapling-seedling stands had a net decline in excess of 2.1 million acres. Obviously, stands grew out of these categories much faster than they were being replaced.

The net gainers were poletimber (increase of 1.7 million acres) and sawtimber stands (increase of 2.1 million acres). Changes of this magnitude highlight the dynamic nature of New York's forests and reveal the woods to be more vigorous than usually imagined. Unless timber harvesting increases markedly, or some massive disturbance (e.g. hurricane or insect plague) occurs, the future will bring an even higher proportion of sawtimber stands and a lower proportion of immature stands. A plausible scenario of what New York's stand-size structure might be by 1990 may be derived from looking at neighboring Pennsylvania's situation. The stand-size distribution at the time of Pennsylvania's second survey (1965) showed a strong resemblance to New York's distribution in 1980.

The third survey of Pennsylvania (1978) showed that sawtimber stand concentration climbed from 44 to 48 percent of the commercial forest land base (Powell and Considine 1982). Extrapolating this trend to New York means that sawtimber stands would increase by 10 percent and cover about 46 percent of the commercial forest-land base by decade's end. Of course, a continued expansion of New York's forest land base would dilute the sawtimber stand percentage increase. Pennsylvania, in fact, had a slight decrease in commercial forest land between surveys.

The historical decline in farmland and the shift to a more mature stand-size distribution have a number of implications for the state's timber and nontimber resources. A summary of the effects of these trends includes: increasing timber volume, growth, and removals; reduced total wildlife habitat diversity; increased potential for forest related outdoor recreational activities such as hiking, camping, cross-country skiing, and hunting of "big woods" game such as bear and turkey. Hunting potential should decline for game species such as rabbits and grouse that prefer habitats of immature timber and forest-agriculture land mixtures.

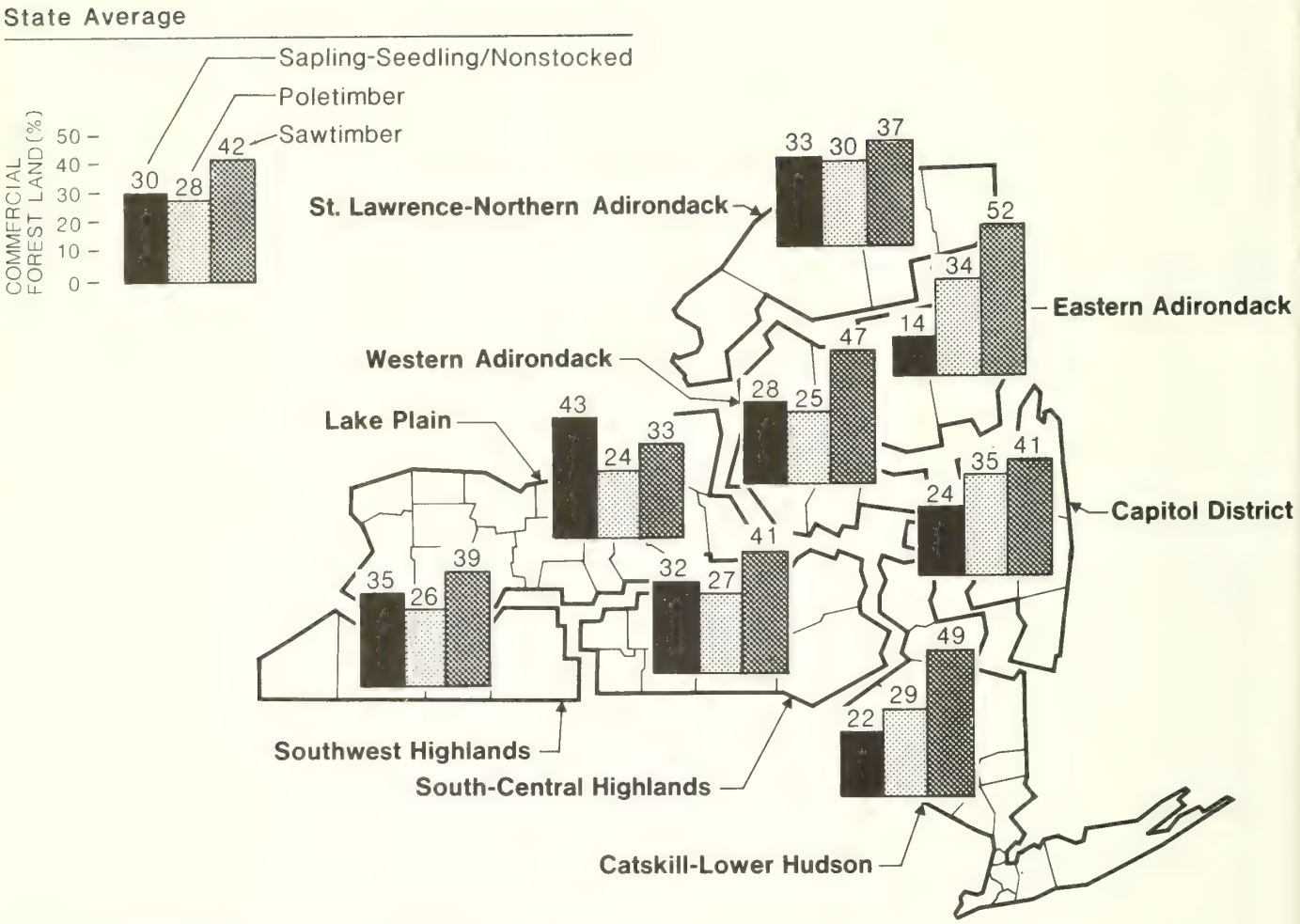

Figure 12.—Stand-size distribution, by geographic unit, 1980.

Considerable variation exists between the stand-size distributions of the eight geographic units (Fig. 12). The general trend is toward a more mature distribution as you move across the state from west to east. The Eastern Adirondack Unit has the highest proportion of sawtimber stands—52 percent—and the lowest proportion of sapling-seedling stands —14 percent. At the other end of the state and the stand-size distribution scale is the Lake Plain Unit. It has the lowest proportion of sawtimber stands—33 percent—and the highest proportion of sapling-seedling stands —35 percent.

The stand-size pattern of each unit results from its particular history of land use shifts and timber cutting practices. In the Lake Plain Unit, a combination of level terrain and good soils made it an agricultural center. Forest land was usually cleared to make way for crops, orchards, and pasture. In the last several decades the trend has reversed, especially in pasture land in the southeastern counties of the unit where land has been allowed to revert to forest. Because there was little forest to begin with, these recent increases meant there would be a high proportion of immature stands in the unit's distribution. It will be decades before the unit's timber resource is mature.

The stand-size distribution is very different in the Eastern Adirondacks. Sawtimber stands are more common here than anywhere else in the state. The reasons are closely tied to the unit's particular land use and cutting history and the species composition of the unit's forests.

The Eastern Adirondack Unit is very heavily forested—94 percent. Like many other units it received heavy timbering pressure around a century ago. Unlike other units, however, extensive farming has not kept many areas clear.

Steep slopes and harsh winter weather characterize the unit which contains the heart of the Adirondack Mountains. These severely limiting factors ensured the failure of the majority of agricultural attempts. Farmland abandonment was early and frequent; so, many forests in the Adirondacks have been growing longer than those in other parts of the state. Since they are typically older, there are more big trees and consequently more sawtimber stands.

Another factor in the stand-size distribution is the species composition of Eastern Adirondack forests. Softwoods are common, especially white pine which accounts for 25 percent of the sawtimber volume. Pine commonly seeded in on old fields and grew rapidly. The deep, sandy, glacial outwash soils found in parts of the unit are excellent for white pine growth. The abundance of pine and other softwoods is important to stand-size determination because softwoods qualify as sawtimber at a smaller diameter than hardwoods—9 versus 11 inches.

New York's five ownership classes have some interesting differences in stand-size distribution. Three of the ownerships—forest industry, public, and miscellaneous corporate—have sawtimber stand concentrations above the state average, while the other two ownerships—farmer and miscellaneous private—have below average sawtimber stand concentrations.

Forest industry land has the highest proportion of sawtimber stands (54 percent) and the lowest proportion of sapling-seedling stands (11 percent). At first glance this seems surprising given industry's need to cut timber to sustain its pulpmills and sawmills. However, it should not be a surprise to anyone who has looked at the history of real price increases for sawlogs and pulpwood in the Northeast. Real stumpage prices for pulpwood have declined or at best stayed even while the real prices for sawlogs, especially for valuable species such as red oak, black cherry, and sugar maple, have increased.

Managers in forest industries and public agencies, and some private citizens have realized the much greater value they can receive from their timber if they manage it to sawtimber size. In these cases, the astute owners have undertaken activities such as thinning and cull tree removal to hasten the growth of more vigorous trees.

Public lands have slightly over half their commercial forest area in sawtimber stands with the rest being about evenly split between poletimber and sapling-seedling stands. This is quite a change from a dozen years ago when each of the three major stand sizes accounted for one-third of the public forest land. While not the only reason, a contributing factor is the maturation of many softwood plantations established around the time of the Depression.

Farmers and miscellaneous private citizens are the two groups with below average sawtimber stand concentrations and above average sapling-seedling stand concentrations. In addition, these two groups have virtually all the nonstocked land. Farmer-owned lands have a higher proportion of immature stands because the million acres of new commercial forest land came largely from abandoned pasture land. Miscellaneous private lands show a higher than average proportion of immature timber because their owners have been buying forest and abandoned farmland from farmers and because their forests have supported more timber harvesting than commonly believed.

Since the sawtimber proportion on industry and public lands is more than 50 percent, increased timber harvesting is expected from these owners during the coming decade. However, timber cutting on public forests may be modified because of increased demands by the public for nontimber forest benefits from these lands. While the stand-size distribution on public and forest industry lands may mature some more, a more noticeable change is likely on lands owned by farmers and other private owners.

Substantial additions to the forest land base helped maintain the nonstocked and sapling-seedling proportion on farm and miscellaneous private ownerships. Because future increases should be smaller, the proportion of immature stands on these lands should drop. Combining this drop with the fact that growth exceeded removals means the proportion of pole and sawtimber stands should rise perceptibly over the next decade on farmer and miscellaneous private lands.

Stand-size class	Public	Forest industry	Farmer	Misc. corporate	Misc. private	Total
	Thousand acres					
Sawtimber	504.2	561.4	1,416.3	591.6	3,334.8	6,408.3
Poletimber	235.5	363.3	1,132.0	296.5	2,348.0	4,375.3
Sapling-seedling	227.5	110.0	1,096.2	214.4	2,365.9	4,014.0
Nonstocked	11.8	—	301.1	15.5	279.8	608.2
Total	979.0	1,034.7	3,945.6	1,118.0	8,328.5	15,405.8

Forest Type

Since the last survey, the forest typing procedure has been improved and changed enough that comparisons between the survey results should *not* be made.

New York's forests are quite diverse. Over 60 species of trees were encountered during the survey. The occurrence of the tree species in the forest is not random. Forest types based on groupings of certain trees can be recognized. Forty-one forest types were discovered, a strong indication of the forests' variety. To simplify data analysis, the types can be assigned to eight forest-type groups (Fig. 13).

The dominant type group is northern hardwood, which covers 61 percent of the commercial forest land. This type group is ubiquitous, being the most frequently occurring group in all eight units. It is usually outcompeted only under edaphic extremes (by white pine on deep sands) or physiographic extremes (by spruce/fir at high elevation).

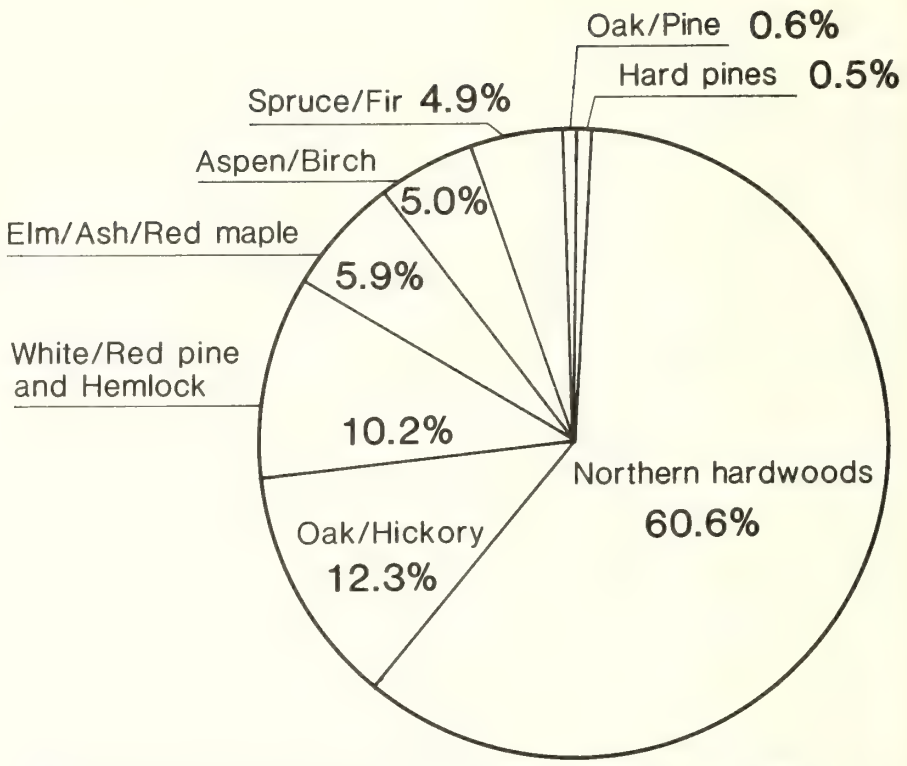

Figure 13.—Percentage of commercial forest land, by forest-type group, 1980.

The typically cool, moist climate of New York, combined with an abundance of glaciated soils, creates generally favorable growing conditions for northern hardwoods. Most of the state's valuable timber trees are common to this type group—sugar maple, yellow birch, black cherry, white ash, and basswood. Many of the same trees are responsible for the beautiful fall foliage seen across the state. Not all northern hardwood species are common throughout New York. White ash and basswood are common in the warmer southern part of the state, while yellow birch is more common in the cooler north.

Sugar maple/beech/yellow birch covers nearly 4½ million acres, and is the most common forest type in this or any other type group. All of the three species do not have to be present for a stand to be included in this type. In fact, much variation exists, with beech preferring drier sites and yellow birch preferring moister sites. Beech and yellow birch have not kept pace with red and sugar maple's development and have decreased in importance in many stands. Beech, especially in the Adirondacks, has been suffering for decades from beech bark disease mortality and anticipatory timber harvesting. Yellow birch has been heavily cut because of its value for veneer and sawtimber. Concurrently, yellow birch has rather exacting regeneration requirements which have not been met in many regenerating stands. The net result is that sugar and red maple are more dominant in many stands than they were at the time of the first survey.

It is worth noting that the sugar maple/beech/yellow birch forest type is more mature than many types, with nearly 60 percent of its area in sawtimber stands. In contrast, three out of the four remaining types in the northern hardwood type group have more sapling-seedling and nonstocked stands than saw and poletimber stands. These immature types are largely composed of shade intolerant species such as pin cherry that have seeded into abandoned fields or species such as red maple that may be residuals left after a disturbance. Over time, ecological succession will convert many of the undisturbed stands to the sugar maple/beech/yellow birch type (Fig. 14).

Oak/hickory is a distant second in the type-group ranking, covering 12 percent of the commercial forest land (Fig. 13). New York is on the fringe of the oak/hickory or Central Hardwood Region, which extends mostly south and west of New York. Oak/hickory's occurrence is not evenly spread across the state. Almost 40 percent of its area is found in the warmest part of the state, the Catskill-Lower Hudson Unit.

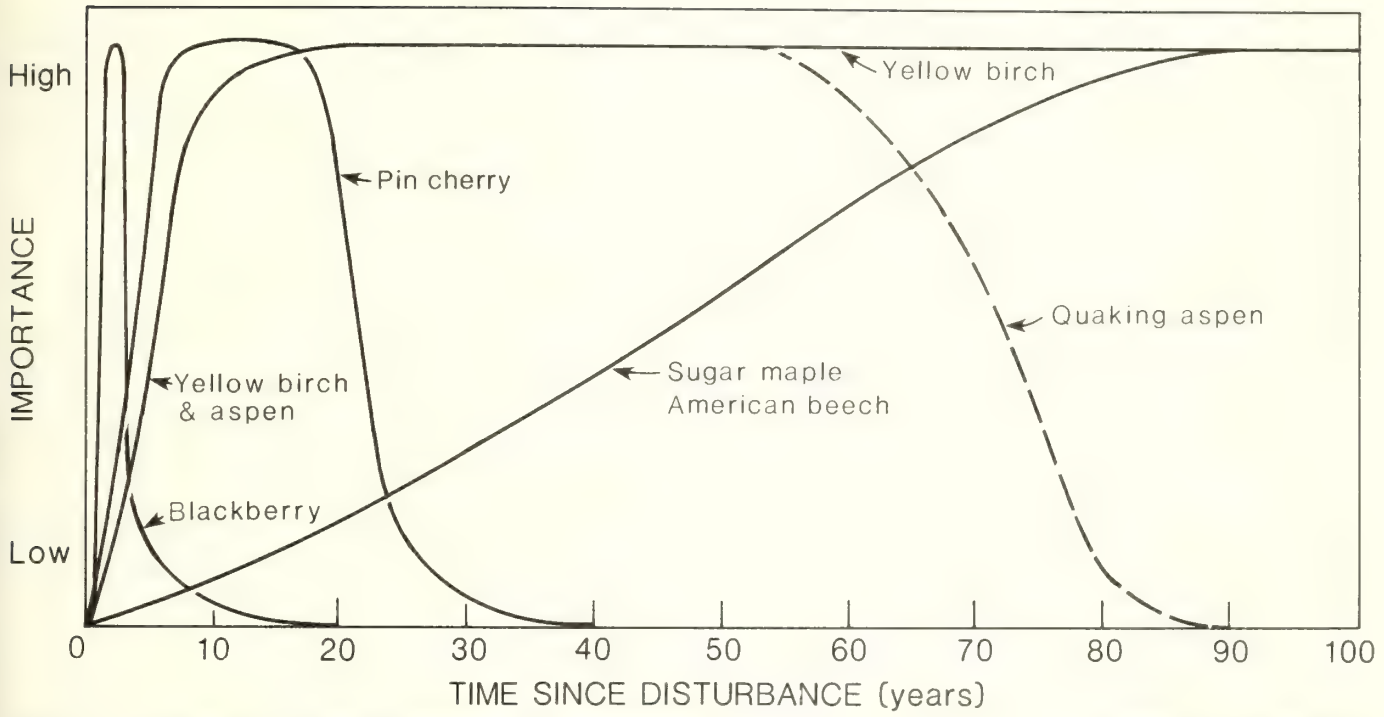

Figure 14.—Importance of different species along a time sequence following disturbance of a typical northern hardwood forest.

Adapted from: Marks 1974

The other parts of New York where oak/hickory stands are likely to be found are the Hudson River Valley up to Lake Champlain and the west-central part of New York between the Finger Lakes and the Pennsylvania border. Both of these regions are transition zones between oak/hickory and northern hardwoods. The oak/hickory stands often will be at the warmer, lower elevations or on drier, warmer south-facing slopes.

The oak/hickory type group is the most diverse type group. Included in its 12 forest types are yellow-poplar, black locust, and black walnut. The two dominants are the valuable northern red oak and white oak/red oak/hickory types, which split 45 percent of the group's area.

Like the sugar maple/beech/yellow birch type, the two oak types have more than half their area in sawtimber stands. Unlike the future of the maple/beech/birch type, the long range future of the oak types does not look too rosy. Insect attacks, mostly by the gypsy moth, have plagued oak stands and demand has been high for quality red and white oak timber. At the same time, oak regeneration in New York, as in neighboring states, has been poor. The likely result of these trends will be an increase in the area covered by the number three type in this type group—red maple/central hardwoods. In many stands in and outside of New York, where red maple was only a minor associate, disturbances to the stand are leaving red maple a much more important species (Powell and Erdmann 1980).

White/red pine and hemlock is the third most common type group. It covers 10 percent of the commercial forest land. The dominant type is white pine followed by hemlock, white pine/hemlock, red pine, Scotch pine and jack pine. The last three types account for less than 20 percent of the group's area.

Like the oak/hickory group, this group is not as widespread as the northern hardwoods. Over half the stands are in three eastern units, the Capitol District, Catskill-Lower Hudson, and Eastern Adirondack.

The white pine type is one of New York's most valuable timber types. It is concentrated in a strip of land running from Clinton County southward along the eastern edge of the Adirondacks into Saratoga County. White pine is commonly found on deep, glacially deposited sands or gravels. These soils support excellent white pine growth while limiting hardwood competition.

Another factor in white pine's distribution is the pattern of farmland abandonment in this region. Unlike western New York where cropland usually went to unimproved pasture before reverting to woodland, in the eastern part of the state, cropland usually reverted directly to forest land. The eastern pattern of farmland abandonment favored white pine because it faced little competition from hardwoods. Plowing and other active farming treatments had eliminated hardwood rootstock. In areas where cropland first goes to pasture and hardwoods become established, white pine does not do well (Oliver 1981).

The hemlock type occupies a smaller area than the white pine type, but this figure underestimates hemlock's abundance. Whereas white pine tends to be found in rather pure stands, hemlock often is not. Hemlock may form pure stands in cool, moist valleys, but it is also a common associate in northern hardwood stands (see the Timber Volume section).

Plantations cover only about 4 percent of New York's commercial forest land, but they are among the most conspicuous forest scenes. New York has been a leader among northeastern states in distributing seedlings and promoting this aspect of forest management. The vast majority of plantations contain softwood species, largely white, Scotch, and red pine.

These plantations contribute significantly to a meaningful characteristic of the white pine and hemlock group; namely, that it is more mature than the other type groups. One example of the maturity is the white/red pine and hemlock group which has 27 percent of its area in stands averaging over 6,000 board feet per acre. No other group has more than 13 percent of its area in these high-volume stands. Reasons for the maturity and high-volume characteristics of the white/red pine and hemlock group include the aging of many softwood plantations, the ability of softwood types to generally support higher stocking levels (especially when planted), and a lack of immature stands created by abandoned land not seeding into softwood species. As discussed, much of the new forest land is from abandoned pasture land that does not support softwood seedlings well.

Percentage of each forest-type group's commercial forest land area in stands averaging over 6,000 board feet per acre

White/red pine	27
Oak/hickory	13
Northern hardwoods	12
Spruce/fir	8
Elm/ash/red maple	2
Aspen/birch	—
Oak/pine	—
Hard pine	—

Elm/ash/red maple covers nearly 6 percent of the commercial forest land. It reaches its greatest concentration in the Lake Plain Unit where one-third of its area occurs and it accounts for 15 percent of the unit's commercial forest land. The Lake Plain is not a heavily forested unit because its soils and climate are favorable for agriculture. Yet some areas are too wet to farm and that is where this type group is found.

In contrast to the preceding type groups, elm/ash/red maple timber is immature. Two-thirds of its area is in sapling-seedling and nonstocked stands, in part because its been seeding in on wet, abandoned areas. This is also the most poorly stocked type group; only 20 percent of its stands are fully stocked. Because of the stocking and stand-size distribution, timber volumes per acre are low.

Of the three forest types in this group, black ash/elm/red maple accounts for three-quarters of the area. This has been a very dynamic type because Dutch elm disease has been eliminating the elm component and allowing the red maple to flourish. Black ash serves as an indicator species.

Aspen/birch covers 5 percent of the state's commercial forest land. After the turn of this century, when timber harvesting was intense and fires were common, this type group occurred much more frequently because it is a pioneer type group that seeds in after severe disturbance. The species are not long-lived and usually give way to northern hardwoods. In the meantime, this group provides valuable food and cover for a number of wildlife species.

Nearly 37 percent of this type group's area is found in the St. Lawrence-Northern Adirondack Unit. The reason for the concentration is related to this unit's combination of frequently occurring infertile soils and history of repeated timber cutting and fire.

Spruce/fir covers about 5 percent of the commercial forest land. Its area would have been much larger if the forest survey had included the Adirondack and Catskill Forest Preserve lands. Spruce/fir prefers the coolest parts of the state that are often at higher elevations on Preserve lands. Unlike aspen/birch, the spruce/fir group was not helped by the heavy timbering and intense fires earlier this century. In fact, the area covered by spruce/fir declined sharply because of its suitability for lumber and pulp and the repeated burnings that depleted the soils.

More than two-thirds of spruce/fir's area is found in two units—the St. Lawrence-Northern Adirondack and Eastern Adirondack—oftentimes on poorly drained soils. Nearly one-quarter of spruce/fir's area is in wet site types such as northern white-cedar, tamarack, and black spruce. Perhaps one-fifth of spruce/fir's area is in plantations, largely Norway and white spruce and larch. These tend to be more common in south-central and southwestern New York.

The last two type groups, oak/pine and hard pine, collectively account for barely 1 percent of the commercial forest land. In that respect, they are not significant. However, to the people of Long Island, one of these forest types (pitch pine) has very special significance. Rapid urban and suburban development, combined with improper waste disposal,

has threatened Long Island's essential ground water supply. Portions of the aquifer are still covered by forest land, mostly the pitch pine type. Pressures to develop the land are great, but the realization that the remaining forest land serves as a living filter for the water supply has spurred preservation efforts.

There is a lesson to be learned from this struggle. A forest does not have to be highly productive in terms of wood fiber yield to have a significant impact on our quality of life. Long Island's pitch pine forest has been burned repeatedly, is not well stocked, is not growing rapidly, and is seemingly an impediment to progress. Yet without the forest, the sandy soils would allow the human wastes associated with development to leach into the very water supply the population depends on for survival (Egginton 1981).

Analysis of the forest-type group data by ownership reveals some interesting patterns. Northern hardwoods have the largest share of each ownership, covering from a low of 52 percent of miscellaneous corporate lands, to a high of 76 percent of forest industry lands.

Public lands have a higher than expected share of the white/red pine and spruce/fir groups, largely because of their active plantation program. Public lands have 6 percent of the commercial forest land but 9 percent of the white/red pine group and 13 percent of the spruce/fir group.

Forest industry has a higher than expected share of the spruce/fir group and lower than expected share of the white/red pine group and oak/hickory group. They own 7 percent of the commercial forest land, 21 percent of the spruce/fir area, and only 1 percent of the white/red pine and oak/hickory group.

The high proportion of spruce/fir can be traced to industry's desire years ago to own a portion of the resource needed to feed their mills. Over two-thirds of forest industry's lands in New York were acquired before 1900 (Birch 1983). At that time, lumber and pulpwood production were high. Pulpwood production peaked in 1905 when more than 100 pulpmills consumed 1.3 million cords, 90 percent of which was spruce and fir (Canham et al. 1981). With competition at such a frenzied level, there was an obvious need to control some of the resource.

The minute level of white/red pine is tied to industry's cutting most of the mature pine on its land. This usually resulted in conversion to a northern hardwood stand. Because white pine grew on farms and other private lands, there was little need for industry to manage for pine. Forest industry also was able to adapt and utilize the hardwoods that replaced the pines.

Farmer-owned forest land is distinguished by its higher than average acreage of elm/ash/red maple and aspen/birch. These type groups are the pioneer types that have been invading abandoned lands and some cutover areas. Farmers have the highest proportion of sapling-seedling and nonstocked stands; so, the proportionately high amount of land in pioneering type groups is consistent.

The miscellaneous private owners have higher than expected amounts of oak/hickory, white/red pine, and elm/ash/red maple. These owners have been increasing their share of the commercial forest land base mostly by acquiring farmer-owned lands. Because of this trend, the two ownerships share some common traits, including a higher than average amount of immature timber and acreage in pioneer type groups.

Forest-type group	Public	Forest industry	Farmer	Misc. corporate	Misc. private	Total
	Thousand acres					
White/red pine	135.8	23.2	424.5	86.5	899.3	1,569.3
Spruce/fir	100.1	157.8	75.7	92.3	328.7	754.6
Hard pine	—	—	39.5	6.0	40.4	85.9
Oak/pine	16.1	5.2	—	22.4	47.6	91.3
Oak/hickory	92.6	21.7	405.6	276.2	1,092.4	1,888.5
Elm/ash/red maple	34.3	14.0	278.5	31.1	549.1	907.0
Northern hardwoods	543.8	784.2	2,459.1	579.2	4,964.6	9,330.9
Aspen/birch	56.3	28.6	262.7	24.3	406.4	778.3
Total	979.0	1,034.7	3,945.6	1,118.0	8,328.5	15,405.8

Timber Volume

Not only did New York's forestland base expand between surveys, but growing-stock and sawtimber volumes increased 38 and 53 percent, respectively. Recent forest surveys in neighboring states show that timber volume increases are the norm as our northeastern forests continue to mature (Powell and Considine 1982, Dennis 1983).

The percentage gains translate to an increase of 4.3 billion cubic feet of growing stock and 13.3 billion board feet of sawtimber. A major reason for the large percentage gains is that they come on top of a small base. New York had many immature stands with little volume at the time of the second survey, many of which grew to pole or small sawtimber by the third survey. However, nearly one-third of New York's commercial forest land still remains in immature stands.

New York's commercial forest land now contains 15.8 billion cubic feet of wood. This enormous quantity of wood could be used to build a boardwalk that would be a foot thick, 1,000 feet wide, and stretch from New York City to Los Angeles. For those who work in terms of cords, New York's commercial forest land averages 12.8 cords of wood per acre. This assumes a conversion factor of 80 cubic feet of solid wood per cord.

While the increase in the average cubic-foot volume per acre of commercial forest land from 793 in 1968 to 1,024 in 1980 reflects the maturing of many stands, the current average shows the effect of the still common immature stands. New York's 1980 per acre average lags behind most neighboring states.

Future volume percentage gains are not likely to be as large because they are coming on top of a bigger base, but absolute gains of similar magnitude are possible.

A number of interrelated factors explain the substantial growing-stock and sawtimber increases. Tying the factors together is the theme of a maturing forest. The woods continue to grow after being logged, burned, or cleared and many stands have reached a stage of rapid growth. They have been allowed to grow because there has not been an historically strong timber market for young timber or for some species of any size (for example, red maple). Market development, including fuelwood, for these species has been a relatively recent occurrence.

Changing ownership patterns also fostered forest maturation. The ownership trend has been away from farm owners who viewed timber as a crop to be harvested as needed, to city and suburban owners who do not need wood for farm uses and generally wanted to own "green space." This does not imply that nonfarmers will not harvest timber, but they are probably more selective in when and how they cut.

Evidence of the maturing forest may be seen in Figure 15. Much information can be gleaned from this chart. First, the 1980 curve generally lies above and to the right of the 1968 curve. This indicates that average tree diameter is increasing (from 8.4 to 8.7 inches), a sign of the aging forest. The area between the two curves represents the 38 percent growing-stock increase.

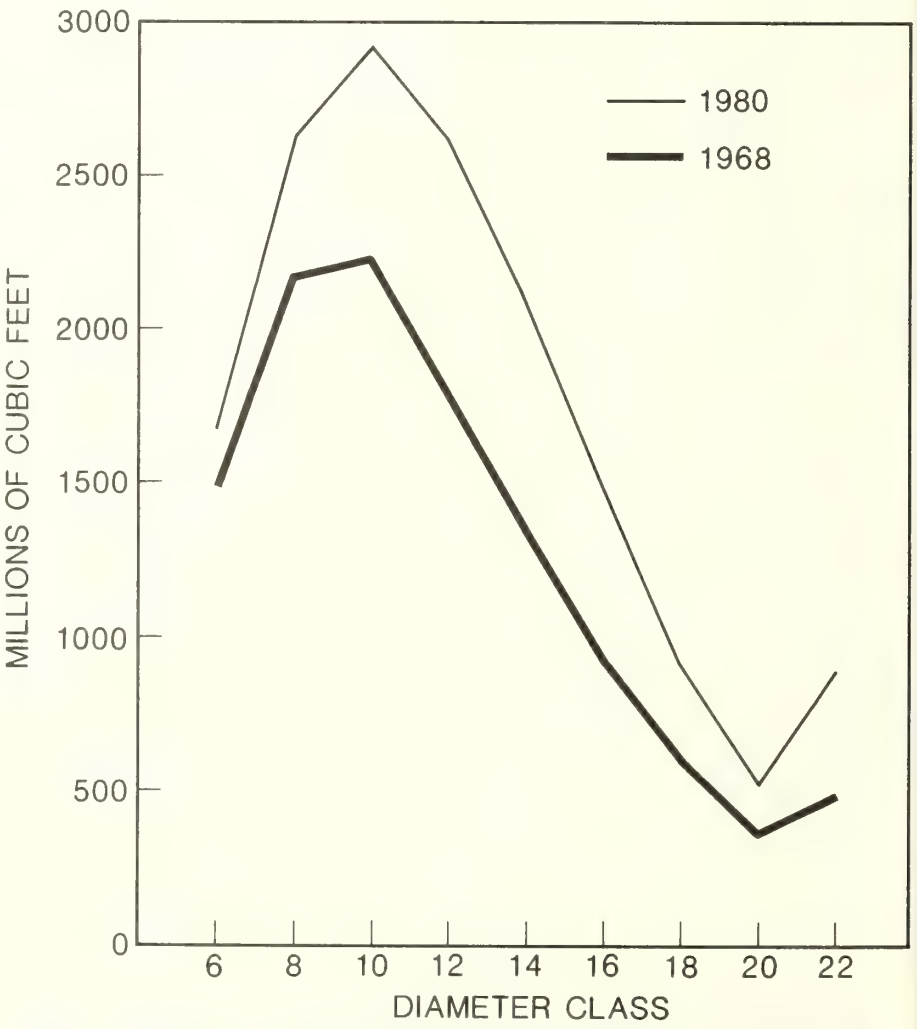

Figure 15.—Distribution by growing-stock volume, by diameter class, 1968 and 1980.

Second, there is an especially wide gap between the 1980 and 1968 curves in the 10- and 12-inch classes. These are the sawtimber entry points for softwoods (9 inches dbh) and hardwoods (11 inches dbh). The bulge explains the proportionately large 53 percent sawtimber volume increase. Many trees that were polesize during the last survey became large enough to qualify as sawtimber. Therefore, the substantial sawtimber increase does not mean that there is a lot of large sawtimber in the woods, rather it reveals the presence of a bountiful crop of young sawtimber that should increase in size and value as it ages.

Finally, the volume situation in the 6-inch class merits attention. The 1980 volume is quite close to the 1968 level. This too is due to the bulge of timber moving through the diameter classes. Since fewer saplings will be growing into this class, the next survey is likely to show a volume drop in the 6-inch class and possibly a drop in the 8-inch category.

Even though all the units did not have an increase in commercial forest land, they all had increases in growing-stock and sawtimber volume (Fig. 16). Generally, the larger units have more total volume and had larger volume increases. However, this does not mean that timber volume is more concentrated in larger units. For example, the Eastern Adirondack ranked seventh out of eight units in 1980 total growing-stock volume and had the second smallest volume increase (absolute and percentage) of any unit. However, when the effects of the land-base size are eliminated, the Eastern Adirondack Unit has the highest average volume per acre of any unit. It also had the highest average volume per acre during the last survey.

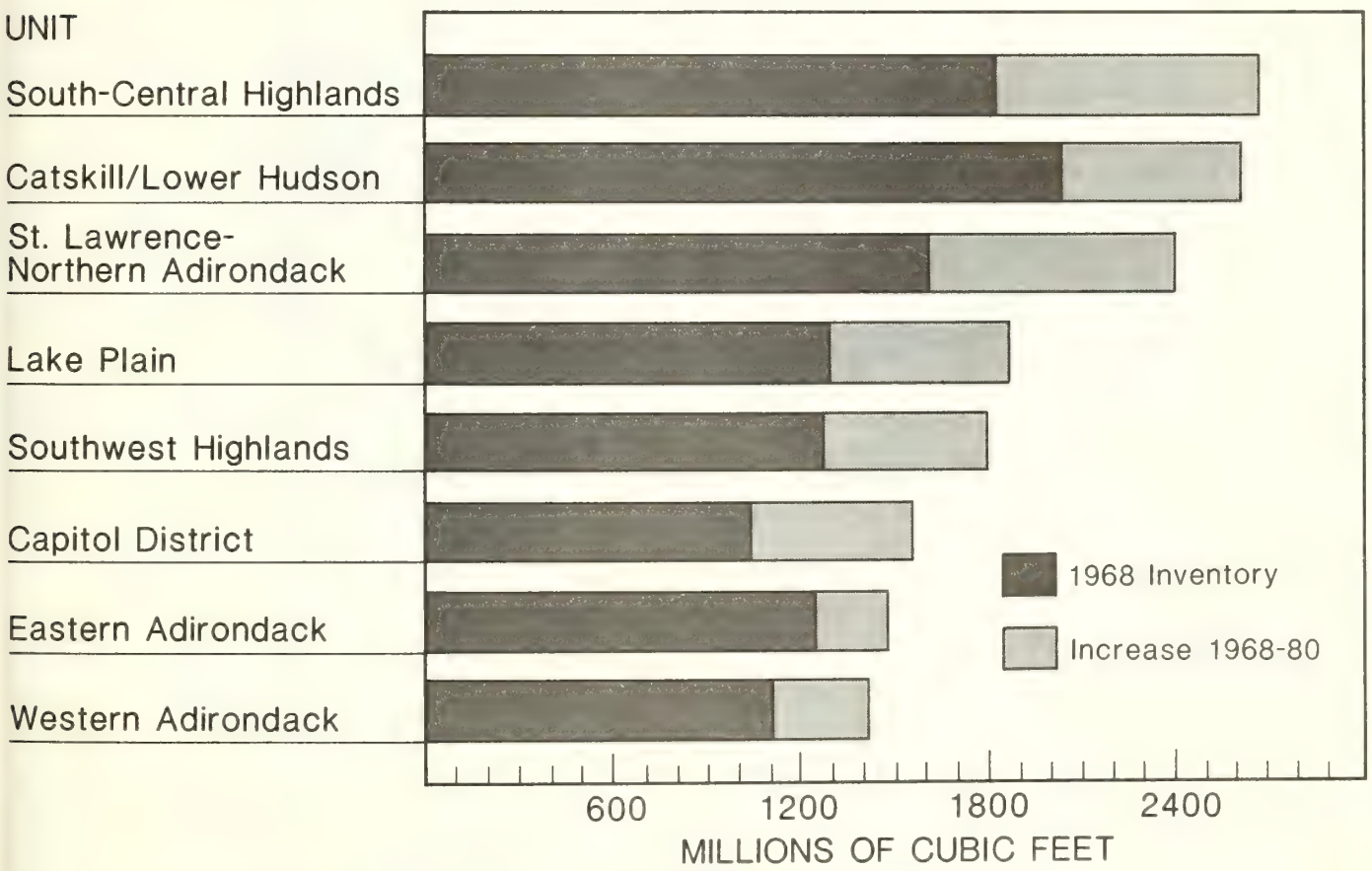

Figure 16.—Growing-stock volume, by geographic unit, 1968 and 1980.

In the earlier discussion of stand-size class distribution, it was noted that sawtimber stand proportions tend to be higher in eastern New York than western New York. Therefore, it is not surprising that average volume-per-acre estimates tend to be higher in eastern New York than western New York (Fig. 17).

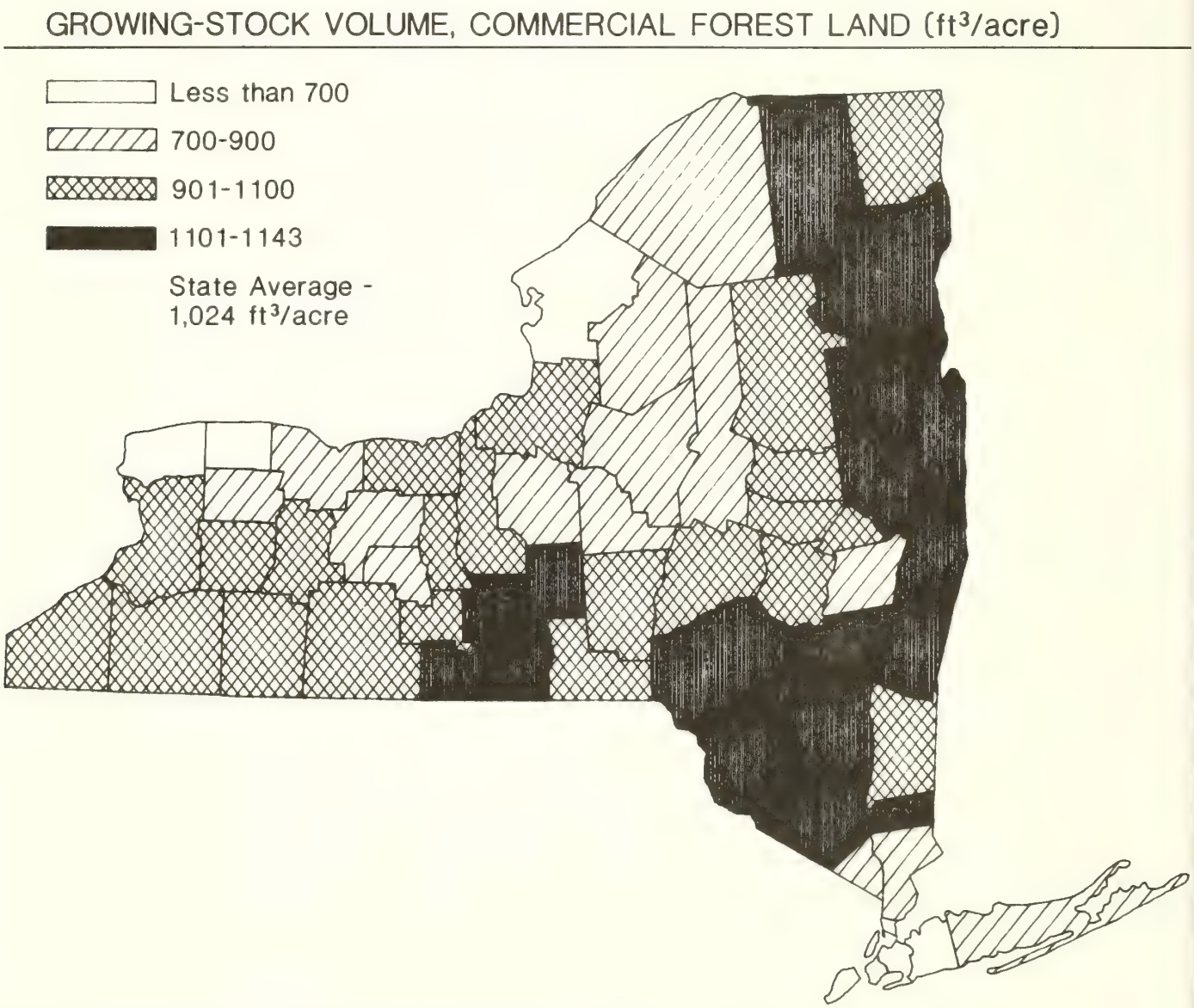

Figure 17.—Growing-stock volume per acre of commercial forest land, by county, 1980. (State average = 1,024 cubic feet per acre)

Significantly, almost three-quarters of New York's counties that average over 1,100 cubic feet per acre also are over 50 percent commercially forested. These are counties with significant timber concentrations. While no particular species dominates the volume in the high volume counties, softwoods seem to influence the averages. Softwoods account for 28 percent of the volume in these counties as opposed to 22 percent of the volume in all other counties. White pine is the top softwood in the high volume counties.

Species

New York's diverse forests contain over 60 tree species. Hardwoods account for 76 and 72 percent of New York's growing-stock and sawtimber volume, respectively. The hardwood share of the volume total increased slightly between surveys.

The most recent publication showing forest statistics for the Nation revealed that in 1977, New York's sugar maple volume was second only to Michigan's. New York is virtually tied with Pennsylvania for the lead in white ash volume. The Empire state ranked fourth in the amount of basswood volume (12 percent of the National total) and fourth in yellow birch volume (13 percent). Softwood rankings also fare well. New York is second in the Nation in eastern hemlock volume (15 percent) and third in eastern white and red pine volume (13 percent) (USDA Forest Service 1980).

With a variety of tree species, New York forests experienced a variety of species volume changes. To facilitate analysis of the species' performances, they have been ranked in descending order based on total growing-stock volume. Any species with over 1 billion cubic feet of volume will be analyzed separately. Other species will be lumped into either other softwoods or other hardwoods. It is worth noting that despite the many changes that New York forests have undergone, the order of the first seven of the top 10 species has not changed. The following shows the percentage change in growing-stock volume for the top seven species.

Changes in the Top 10 from 1968 to 1980

1968	1980	% INCREASE
SUGAR MAPLE	SUGAR MAPLE	36%
RED MAPLE	RED MAPLE	58%
HEMLOCK	HEMLOCK	35%
WHITE PINE	WHITE PINE	31%
NORTHERN RED OAK	NORTHERN RED OAK	32%
AMERICAN BEECH	AMERICAN BEECH	40%
WHITE ASH	WHITE ASH	60%
SPRUCE	BLACK CHERRY	
YELLOW BIRCH	ASPEN	
ELM	SPRUCE	
	ALL SPECIES	38%

Sugar maple. This species has been the state's number one tree (Fig. 18) in growing-stock and sawtimber volume for all three surveys. It is the official state tree. Coincidentally, sugar maple accounts for one-sixth of New York's growing-stock volume, and New York has one-sixth of the Nation's sugar maple volume (USDA Forest Service 1980). Sugar maple is the backbone of the state's lumber industry and is used in significant quantities by the pulp and paper industry. Sugar maple also provides esthetic benefits in the form of beautiful fall colors and palatable benefits by being the source tree for 1980's production of 243,000 gallons of maple syrup.

Sugar maple's volume is almost wholly concentrated in the northern hardwood type group where it is the number one species. It is not common in other type groups because they tend to occur more toward the extremes of drainage or temperature where sugar maple does not compete well. For example, sugar maple is not typically found at elevations above 2,500 feet in New York (Fowells 1965) because soils above that level tend to be thinner and less fertile and the climate becomes too cold.

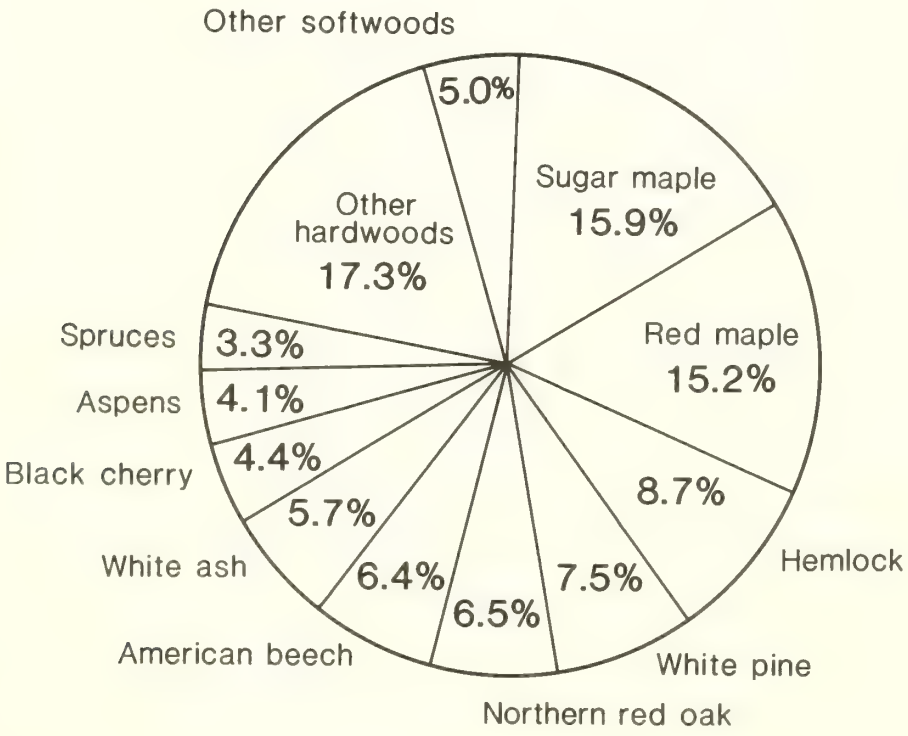

Figure 18.—Percentage of growing-stock volume, by species, 1980.

Sugar maple has more volume than any other tree species in New York.
Sugar maple sap can be collected in the spring and boiled to make maple syrup.

The period of forest recovery has benefited sugar maple. Despite its commercial value, sugar maple prospers because it grows well in New York's climate. Sugar maple's shade tolerance and rapid growth following release after many decades of suppression (Tubbs 1977), plus its stump sprouting ability, help explain why sugar maple is more common today than it was in virgin forests on most of the Allegheny Plateau (Braun 1950).

Sugar maple is widely distributed but not dominant across all of New York. Although it accounts for at least 11 percent of the growing-stock volume in each unit, it is first in growing-stock volume in only two out of New York's eight units. The previous survey showed sugar maple to be number one in six out of the eight units. Sugar maple's dominance decline is not serious because it is close to being number one in several units, but it does reflect the commercial value of the species and the fact that sugar maple volume is not increasing as quickly as some other species such as red maple. The following chart shows the proportional breakdown of growing-stock volume in each unit by species.

Distribution of growing-stock volume, by species, within the geographic units of New York, 1980
(In percent)

Species	Lake Plain	Southwest Highlands	South-Central Highlands	St. Lawrence-N. Adirondack	Western Adirondack	Eastern Adirondack	Capitol District	Catskill-Lower Hudson	All units
Balsam fir	W	0	W	5	2	3	W	0	1
Spruces	2	1	1	7	7	8	1	1	3
Red pine	3	1	3	4	1	1	1	1	2
White pine	3	2	4	4	6	20[a]	16[a]	9	8
Hemlock	7	7	9	4	11	11	15	9	9
Other softwoods	2	1	1	4	1	2	1	2	2
Red maple	17[a]	12	21[a]	17	19[a]	5	11	14[a]	15
Sugar maple	17	23[a]	17	17[a]	14	16	11	11	16
Yellow birch	2	1	1	5	7	8	1	2	3
Sweet birch	W	2	2	W	W	1	2	4	1
Paper birch	0	W	1	2	W	5	2	1	1
Hickories	4	2	1	1	1	W	2	3	2
American beech	5	9	8	8	9	8	2	3	6
White ash	9	9	7	3	5	1	4	6	6
Aspens (populus)	3	6	4	7	3	4	5	2	4
Black cherry	6	6	4	6	8	1	3	2	4
Select white oaks	2	2	1	W	W	W	1	4	2
Chestnut oak	1	0	2	0	0	W	4	6	2
Northern red oak	4	9	8	1	1	4	11	11	7
Other oaks	1	1	1	0	0	W	1	5	1
Basswood	5	4	3	2	2	1	1	1	2
Elms	1	W	W	1	1	1	3	1	1
Other hardwoods	6	2	1	2	2	W	2	2	2
All species	100	100	100	100	100	100	100	100	100

[a]Species with largest volume in unit.
W—Less than 0.5 percent.

Red maple. This is one of the most interesting trees in New York's forests. It has been number two in growing-stock volume for all three surveys but seems poised to take over the number one spot. The first survey showed red maple trailing the leader, sugar maple, by over 600 million cubic feet. By the time of the third survey, the lead narrowed to about 120 milion cubic feet. Red maple has been gaining about 18 million cubic feet a year on sugar maple. This increase means that by the time of the fourth survey late this decade New York should have a new growing-stock volume leader.

Neither red maple nor any other species is likely to overtake the sawtimber leader in the coming decade. Sugar maple has a commanding 1.6 billion board foot lead over number two red maple. Red maple has improved from sixth in the sawtimber ranking in 1953 to fourth in 1968 to second in 1980. How can sugar maple hold such a commanding lead in sawtimber (45 percent) and a narrow lead in growing stock (5 percent)? The answer lies in the diameter-class distribution of the growing-stock trees of the two species (Fig. 19). Since the entry point into hardwood sawtimber is 11.0 inches, it is clear that there are many more sawtimber-size sugar maples than red maples. The more narrow timber measure (sawtimber) shows sugar maple's dominance among bigger trees.

Growing stock is a more comprehensive and meaningful timber measure because it includes the pole-size trees in addition to the sawtimber-size ones. Sugar maple's dominance in bigger trees enabled it to overcome red maple's dominance in smaller trees and barely maintain its growing-stock lead.

Red maple is common throughout much of New York. It accounts for at least 11 percent of the growing stock in each unit except for the Eastern Adirondack (5 percent). Red maple is the number one species in growing-stock volume in four out of the eight geographic units and is one of the few species with growing-stock volume in every forest-type group.

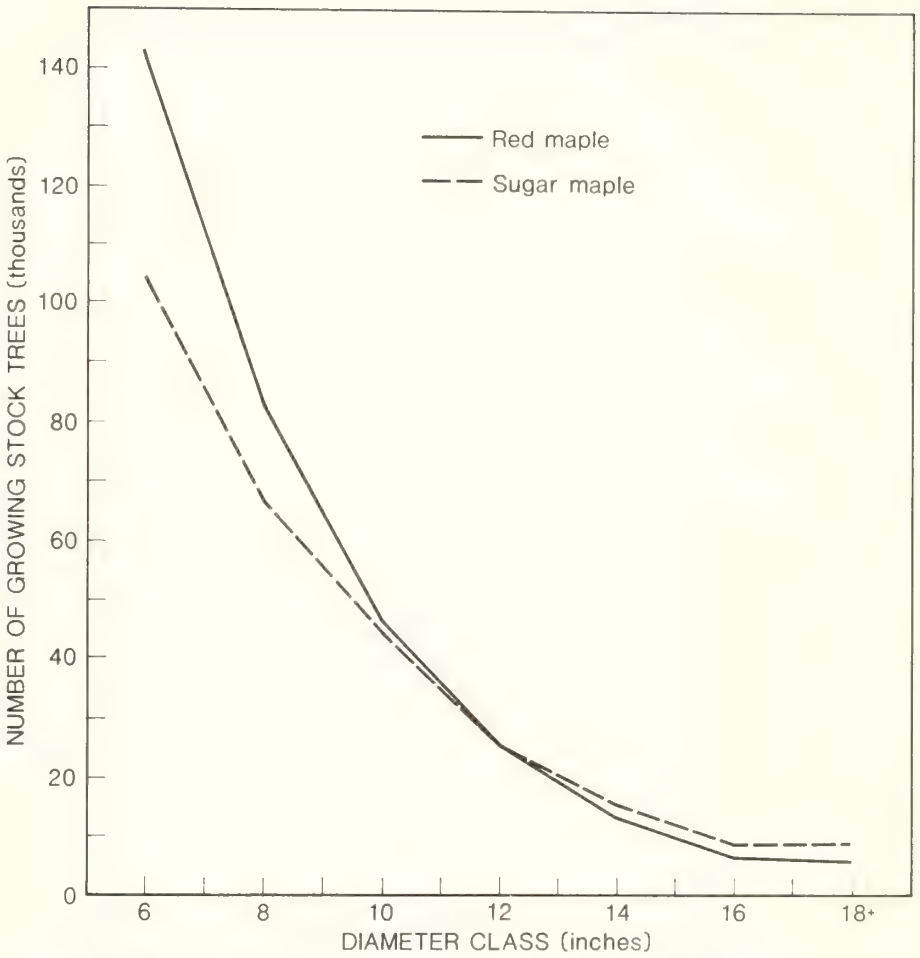

Figure 19.—Red maple and sugar maple diameter class distribution, 1980.

Three-quarters of red maple's volume is found in the northern hardwoods type group. Red maple has more volume than any hardwood in the white/red pine and hemlock and spruce/fir groups. There is more red maple volume than hickory, select white oaks, or other oak volume (excluding red and chestnut oak) in the oak/hickory group.

Red maple has been successful for several reasons. The species is a good competitor because of its vigorous sprouting ability and rapid growth through the poletimber stage. Unlike many species, red maple can grow well, not just exist, on a wide range of sites. About the only places you are not likely to find red maple in New York are at high elevations, on thin soils, and in the wettest areas with organic soils. Red maple also has not borne the burden of harvesting pressure that red oak, yellow birth, or sugar maple have. Nor has it suffered insect and disease attacks such as beech bark disease, Dutch elm disease, or gypsy moth. Red maple has been partly an opportunist, filling in gaps created by the removal of other trees.

Red maple's reputation for being a poor quality tree is not totally deserved, but the gradation of red maple from valuable to valueless because of defect is abrupt. Sugar maple and yellow birch, on the other hand, have variable rates of value reduction due to disease defect (Shigo 1965). Seventeen percent of all live red maples over 5 inches dbh in New York are cull. While this is a higher cull proportion than white ash (7 percent) or northern red oak (5 percent), it is better than beech (25 percent), yellow birch (23 percent), and black cherry (21 percent). On poor sites, red maple is apt to have many defects, but on good sites, red maple can be a high quality species producing sawlogs that command prices equal to or exceeding those paid for sugar maple.

Hemlock. This species is and has been New York's most abundant softwood for sometime. It placed third on the growing-stock list in 1968 and 1980, up from fifth in 1952. Hemlock also placed third on the sawtimber list in 1968 and 1980, up from fourth in 1953.

Hemlock and other softwoods are important to New York's forests. They provide wood products such as construction lumber and pulpwood; visual beauty, especially in winter time; and important wildlife benefits such as shelter for deer when winter snows get deep and roosting places for birds such as turkeys and owls.

Hemlock is mostly concentrated in the eastern half of the state. Nearly 60 percent of its volume is in four units: the Capitol District, Catskill-Lower Hudson, and Eastern and West-Adirondacks.

Other data from this survey portray hemlock in an interesting light. Softwoods are usually found in relatively pure associations. But this is not so for hemlock. Over half of its growing-stock volume is in northern hardwood stands. The reason for this distribution is closely tied to the history of disturbance in New York's forests.

Disturbances, mostly in the form of timber cutting and fire, drastically altered New York's virgin forests where hemlock was a dominant species. Hemlock was so frequent and important in the presettlement forests that Braun included most of New York in the Hemlock/White Pine/Northern Hardwood region (Braun 1950).

Hemlock was cut heavily during the 1800's and early 1900's for lumber and the tannin in its bark (used in tanning leather). In some portions of the state, all trees—softwoods and hardwoods—were removed in large scale clearcuts. Forest fire often accompanied the cutting and frequently spread into uncut areas. Fire is disastrous for hemlock because of its shallow root system and thin bark.

The forests that eventually grew back usually contained proportionately more hardwoods, such as maple and beech, and less hemlock. The hardwoods replaced hemlock after drastic disturbances because hardwoods typically grow faster and sucker or sprout after extensive shoot damage (David A. Marquis, Northeastern Forest Experiment Station, personal communication; Rogers 1978).

The period of forest recovery and maturation has benefited hemlock. Fire has been brought largely under control, and timber harvests have tended to be selective, removing hardwood trees of typically higher value. These conditions allowed hemlock to rebound and become more common in areas it once dominated. Because of its long life span, hemlock will again dominate some stands which remain undisturbed and are classed now as northern hardwoods (Berglund 1980).

White pine. A majestic and beautiful tree, white pine is also New York's most commercially important softwood. Two-thirds of its volume is concentrated in three eastern units. The following chart shows the proportion of each species' growing-stock volume across the geographic units.

White pine's fourth place in the statewide ranking (8 percent of the total volume) belies its dominance where it is most common. White pine is number one in volume in two units, the Eastern Adirondack and Capitol District. In these units, white pine accounts for 20 percent and 16 percent, respectively, of the unit's volume total. Unlike hemlock, 70 percent of white pine's volume is concentrated in the white/red pine and hemlock group. It is not a common associate in other types largely because it is not as shade tolerant and is more site demanding.

Thirty-one percent of white pine's volume is in stands that showed evidence of tree planting, the highest percentage for any major species. White pine was among the most frequently planted trees around the time of the Depression which helps explain the mature nature of the white pine resource. Three-quarters of its volume is in sawtimber stands, and it is third in the proportion of its volume (36 percent) in trees over 15 inches in diameter.

Softwoods usually have less cull than hardwoods. An interesting reversal of the normal situation is illustrated by white pine in New York. Sixteen percent of all live white pines over 5.0 inches in diameter were classed as cull, a proportion above that of many hardwoods. Few white pine culls are rotten trees; most are in the rough category.

The cause for most of the cull can be traced to a small insect called the white pine weevil that kills the pine's terminal leader. Crooks develop and a frequently weeviled pine may be labeled a "cabbage pine." Weevil damage is critical to white pine because it typically attacks trees under 20 feet tall and that can drastically reduce high-value sawtimber volume.

Although white pine had the lowest percentage growing-stock gain among major species, it still increased a healthy 31 percent. Future gains may not be so impressive because

Distribution of growing-stock volume, by species, across the geographic units of New York, 1980 (In percent)

Species	Lake Plain	Southwest Highlands	South-Central Highlands	St. Lawrence-N. Adirondack	Western Adirondack	Eastern Adirondack	Capitol District	Catskill-Lower Hudson	All units
Balsam fir	3	0	1	59[a]	11	26	W	0	100
Spruces	5	5	7	34[a]	18	23	3	5	100
Red pine	17	9	25	29[a]	5	6	3	6	100
White pine	5	3	9	9	7	25[a]	21	21	100
Hemlock	10	9	17	7	11	12	17[a]	17	100
Other softwoods	15	4	11	33[a]	5	10	3	19	100
Red maple	14	9	23[a]	17	11	3	7	16	100
Sugar maple	12	16	18[a]	17	8	10	7	12	100
Yellow birch	7	4	8	22[a]	20	25	5	9	100
Sweet birch	2	12	20	1	W	2	16	47[a]	100
Paper birch	0	2	6	25[a]	1	40	18	8	100
Hickories	27	15	9	5	4	1	11	28[a]	100
American beech	9	16	22[a]	18	12	12	4	7	100
White ash	19	18	20[a]	8	8	2	7	18	100
Aspens (populus)	7	15	16	27[a]	7	10	11	7	100
Black cherry	16	16	15	21[a]	15	2	6	9	100
Select white oaks	13	16	14	4	W	1	8	44[a]	100
Chestnut oak	4	0	17	0	0	1	21	57[a]	100
Northern red oak	8	16	22	3	1	6	17	27[a]	100
Other oaks	7	6	9	0	0	W	7	71[a]	100
Basswood	24	19	24[a]	11	6	4	4	8	100
Elms	13	2	6	19	8	5	32[a]	15	100
Other hardwoods	35[a]	10	4	14	7	2	9	19	100

[a]Unit where largest species volume occurred.
W—Less than 0.5 percent.

white pine still will be sought commercially, and the ingrowth of young trees seems to be slowing. Planting of white pine and most softwoods decreased in recent decades largely because of the termination of the Soil Bank Program in the late 1950's and a state budget crisis in 1971 that forced price increases at state nurseries. Furthermore, some natural pine stands that have been harvested have not regenerated to pine.

Currently there are fewer white pines in the 5.0- to 6.9-inch class than there were in 1968. Future supplies will depend on this class and the smaller diameter classes. White pine's decline in the 5.0- to 6.9-inch diameter class is in direct contrast with the situation of red maple and shade intolerants such as aspen, black cherry, and ash. All of these species had high proportionate growing-stock increases (between 58 and 136 percent). All had significant ingrowth into the 5.0- to 6.9-inch class and now have more volume in that class than they did in 1968 setting the stage for further increases. White pine is in no immediate danger, but increased forest management is needed to sustain its long run vitality as a commercial species.

Northern red oak. This species is the only Central hardwood representative among the major species. It ranks fifth in growing-stock and sawtimber volume, the same position it held in 1968. Red oak ranked seventh during the first survey.

In the last decade, red oak has become one of New York's most valuable forest trees reversing a history of low-value (Fig. 20). Increased export demand, largely by European furniture manufacturers, has been responsible for most of the price increase. Higher harvesting levels, along with reduced growth rates due to defoliation from insects such as the gypsy moth, helped keep red oak's increase "down" to 32 percent.

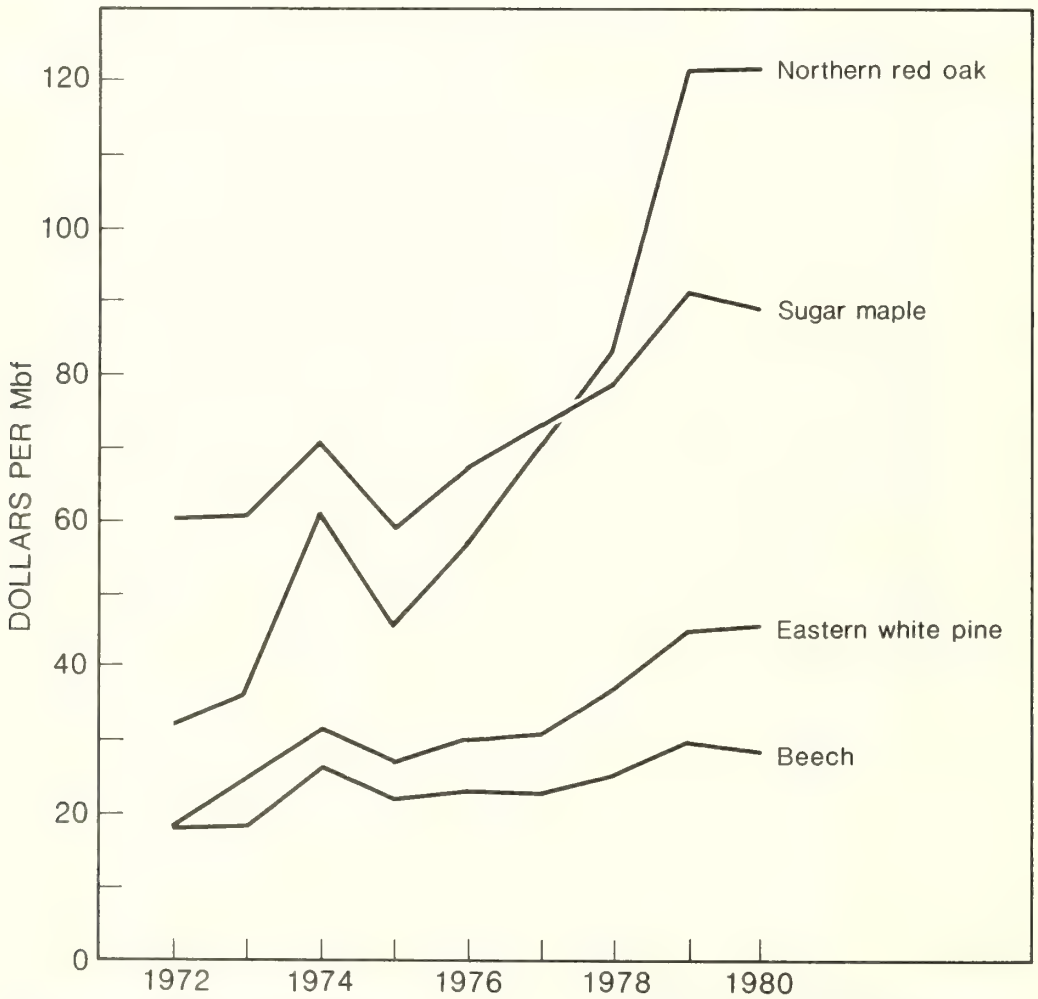

Figure 20.—Average stumpage prices for selected species, 1972-80.

Source: New York State Department of Environmental Conservation Marketing Bulletins

High quality trees like this oak are very much in demand.

New York has been an important supplier of red oak to European markets in part because of the quality of its red oak resource. Only 5 percent of the red oak trees more than 5.0 inches in diameter are classed as cull. Only balsam fir, the hickories, and red pine have lower cull proportions.

Red oak's diameter distribution is among the most mature of New York's species, exceeded only by the select white oaks. Thirty-eight percent of red oak's volume is in trees greater than 15 inches in diameter. This proportion is up from 1968 when 31 percent was in trees over 15 inches.

Not all the connotations of this diameter-class distribution are positive. The mature distribution means good times for red oak users in the short run, but problems in the long run. As with white pine, the number of red oaks in the 5.0- to 6.9-inch class decreased between surveys. Contrast the number of small red oaks with the number of small trees of other species (Fig. 21). Red oak accounts for 8 percent of the live trees greater than 15 inches dbh, but only 3 percent of the saplings.

In other eastern and central states, concern has been expressed about the adequacy of oak regeneration following disturbances. Oak regeneration difficulties in neighboring Pennsylvania were attributed to a variety of causes including: a lack of viable acorns due to acorn insect attacks, rodent damage to the acorns, and deer eating seedlings that emerged (Marquis et al. 1976).

Red oak's volume distribution mostly follows the area distribution of the oak/hickory type group. More than 80 percent of its volume is in four southern and eastern units. It is most concentrated in the Capitol District and Catskill-Lower Hudson Units where it ranks third in volume and has 11 percent of each unit's volume.

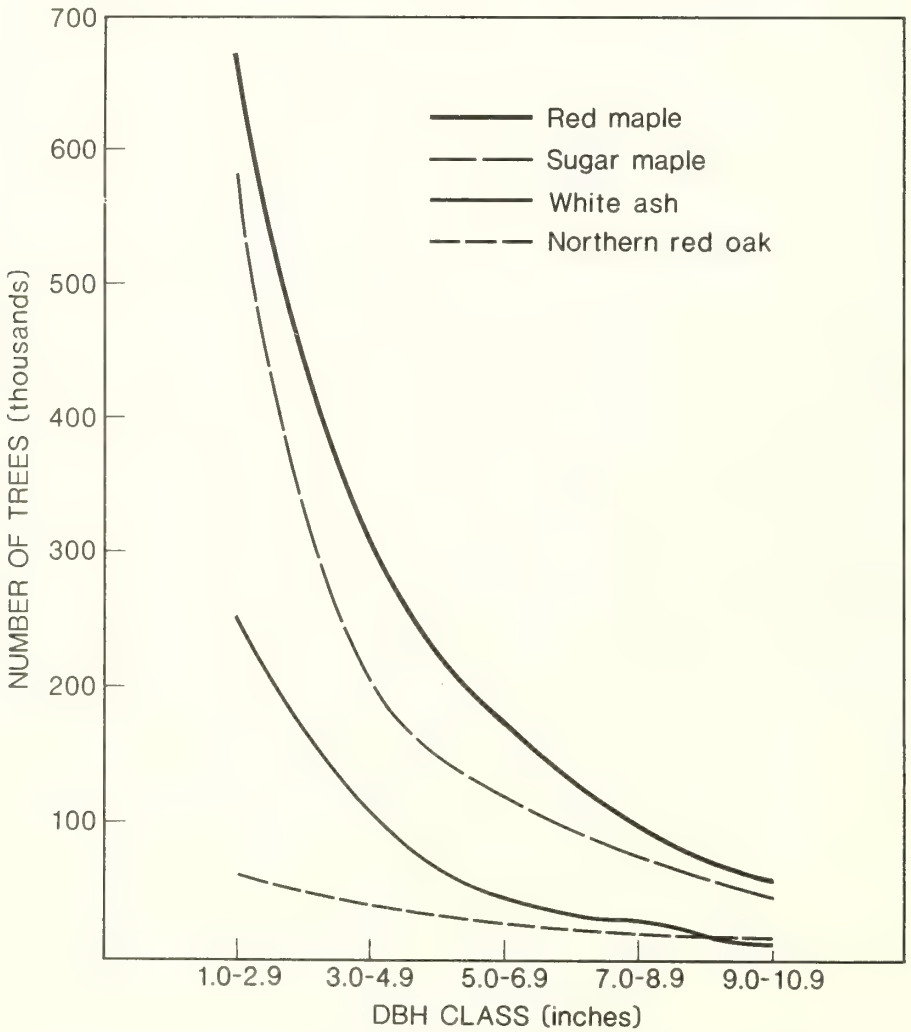

Figure 21.—Number of live trees, by selected species and diameter class, 1980.

An interesting characteristic of red oak is that its range extends farther north than any other oak (Fowells 1965). This helps explain why our survey showed nearly one-quarter of red oak volume in northern hardwood stands, and why red oak has the second most volume of any hardwood (behind red maple) in the white/red pine group. Red oak's occurrence in these groups benefits wildlife because of the hard mast acorns the oak provides. Acorns are a high-energy food source that is used by small mammals such as mice, chipmunks, and squirrels as well as larger creatures such as deer, turkey, bear, and even wood ducks. Except for beech, northern hardwood and softwood forest types usually suffer from a lack of hard mast trees. Beech, especially large, nut-producing ones, have suffered from beech scale-nectria complex in certain parts of New York. So, oak's role in providing an important fall, winter, and early spring wildlife food is even more important.

Red oak is also an important food source in oak/hickory stands even though these stands typically have a higher number of nut producers. Red oak acorns take a year longer than white oak acorns to mature, that is, red oak acorns that formed in the spring of 1982 will mature and drop in the fall of 1983. White oak acorns mature in one growing season; so, those forming in the spring of 1982 would have dropped in the fall of 1982. Because red and white oaks are often found in the same timber stand and have acorns that mature at different times, they can combine to prevent a complete lack of mast for a particular year.

Beech. An analysis of beech is a study of contrasts. With its silvical characteristic of high tolerance and history of low commercial value, we would normally expect beech to have done well. In portions of New York, beech has done quite well. However, in other parts of the state beech is having significant difficulties.

Statewide, beech ranks sixth in growing-stock and sawtimber volume, the same position it held in 1968. This is a drop from 1953 when beech was third in growing-stock and second in sawtimber volume. Beech volume dipped between 1953 and 1968 but was up between 1968 and 1980. Unfortunately for beech's ranking, most other species increased between all surveys.

Beech suffered in eastern and central New York where mortality, cull, and removals (including salvage and presalvage) have been much higher than normal. The cause is an insect-disease complex that is generally known as beech bark disease. More specifically it is an invasion by fungi, especially *Nectria coccinea* var *faginata,* of beech bark altered by the feeding activities of an insect, the beech scale, *Cryptococcus fagisuga.*

The forest goes through three stages of attack: (1) the advancing front, (2) the killing front, and (3) the aftermath zone (Shigo 1972). The disease probably entered southeastern New York about four or five decades ago. Since then, it has moved northward, westward, and southward. In New York, forests now represent each of the three stages.

The advancing front is in western New York and northern Pennsylvania. This area has the scale insect but not the disease. The killing front is in central New York, behind the advancing front (Miller-Weeks 1983). This is the zone where both the scale and *Nectria* fungi occur in abundance and where trees are actively being killed. The fungi often appear 3 to 5 years after the scale insect. Death of infected trees may be rapid or may take 2 to 5 years of fungus infection.

The aftermath zone follows the killing front stage. Many beech stands in eastern New York are now in this stage. In some of these stands, dense thickets of beech root suckers have appeared which may be attacked and rendered highly defective when they get large enough (Houston 1975).

Beech bark disease will continue to spread. The killing front will encompass western New York. Because the northern hardwood type group extends southward along the Appalachian mountains, those states lying astride the mountains can expect trouble for their beech resource. The disease also should spread westward through Ontario and the Lake States.

Volume change data for the region, in front of and behind the killing front, reveal the extent of the beech bark disease damage. The region behind the front might be called the Northern region; it includes the three Adirondack units. Growing-stock volume increased by about 90 million cubic feet (25 percent) since 1968, but sawtimber increased by only about 30 million board feet (3 percent).

These changes highlight two significant characteristics of the disease: (1) that it does not kill all beech trees and (2) sawtimber-size trees are more susceptible than smaller trees. Two points that these statistics do not show, but that have been observed, are that all stands are not equally damaged and some of beech's low volume increase may be traced to increased presalvage activities by knowledgeable landowners.

Another effect of the disease is to cause varying amounts of cull in many of the trees it does not kill. Partly because of this, beech is the most cull-ridden of New York's commercial species. Fully 25 percent of all live beeches over 5.0 inches dbh are cull, and three-quarters of these are rotten.

New York's western region includes three units: the Lake Plain, Southwest Highlands, and South-Central Highlands. Most of this region has not been hit by the disease, and timber volume increases were larger here than in the Northern re-

gion both in absolute and percentage terms. Beech growing-stock volume increased by 170 million cubic feet (55 percent) from the 1968 level, and sawtimber was up more than 600 million board feet (95 percent). There is now more beech in this region than in the Northern region.

It is uncertain how long this lead will last because the disease is spreading west. Most of New York may have experienced the killing stage by decade's end. It is unfortunate that the disease cannot be controlled other than by cutting infected and susceptible trees, because in recent decades beech has become more valued for its timber and appreciated for its contribution of hard mast to wildlife food supplies. The main hope for the species may lie in the resistance to beech scale shown by some infrequently occurring beech trees (Houston 1983).

Other species. Even though there are no other species with more than 1 billion cubic feet of growing-stock volume, a brief commentary on two is included because of what is judged to be a unique characteristic or trend.

Starting with a softwood, we find that red pine exemplifies a maturing timber resource better than any other species in New York. Initially, it was a tree not common to the state's woodlands, but it was often planted around the time of the Depression. Today it is possible to find "naturalized" red pine, but still 87 percent of its volume is in stands that show evidence of tree planting.

This pine is not planted nearly as frequently as in decades past. It is more site sensitive than originally thought, developing what is known as "wet feet" on poorly drained and heavy soils. An insect, the red pine scale (*Matsucoccus resinosae*), and a disease, Scleroderris canker (*Gremmeniella abietina*), are two other problems seriously affecting red pine management.

The result of red pine's planting history is that it has a classical age-class imbalance (Fig. 22). Little new timber has entered the 5.0- to 6.9-inch class and enough has been cut to pretty much offset growth. Hence, growing-stock volume increased a paltry 5 percent between 1968 and 1980.

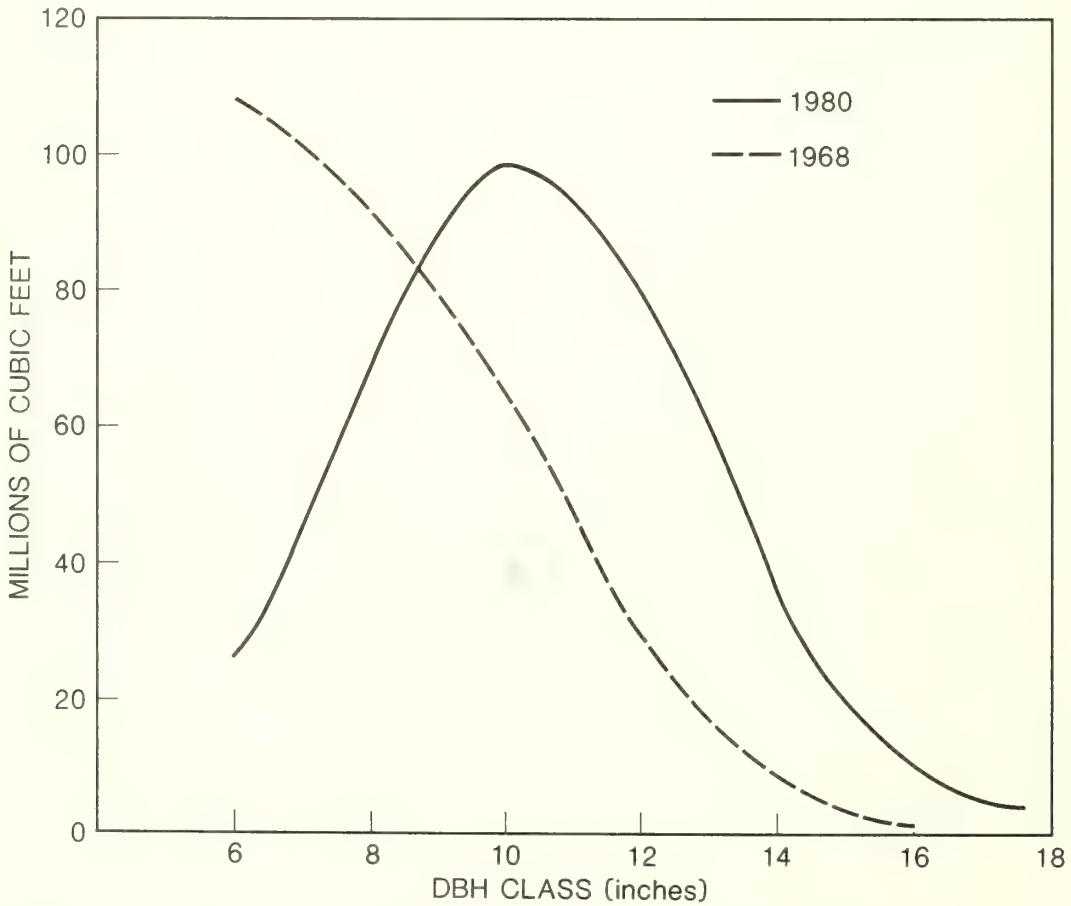

Figure 22.—Distribution of red pine growing-stock volume, by diameter class, 1968 and 1980.

Red pine's sawtimber increase, however, was dramatic due to the redistribution of growing-stock volume from poletimber to small sawtimber size. This accounts for the 113 percent increase in sawtimber volume between 1968 and 1980. It also means a resource is developing for those interested in utilizing a species well suited for lumber, posts, poles, and pulpwood. Future increases of this magnitude should not be counted on because there are not enough young trees to sustain it.

American elm is the one species that is unequivocally declining. Dutch elm disease was first found in America in Ohio around 1930, and has now thoroughly infested the elms in New York. Elm volume declined between the first and second surveys by 20 percent, but enough remained for elm to hold onto its number 10 ranking. Between 1968 and 1980, the bottom fell out for elm as its volume plunged 66 percent. It is no longer even in the top 20.

Elm's decline is unfortunate because it means the loss of timber with strength, and bending and shock-bearing properties. But the biggest loss cannot be perceived from these forest surveys, because the disease has literally wiped clean areas we never inventory—the city and town streets and parks and college campuses that were once lined with huge, stately elms. Those elms still alive are mostly a result of costly management and chemical treatments undertaken by people concerned about retaining the elms' ornamental beauty.

Wet sites are elm's natural home. This species used to be the key member in the elm/ash/red maple forest-type group. Its continued decline will relegate it to an indicator species status. The poorly stocked condition of many elm/ash/red maple stands can be partly attributed to openings created by the demise of elm. Red maple is the most likely species to eventually fill in these gaps.

Ownership

New York's diverse forest-land owners were characterized briefly in the forest area section. An examination of the timber volume on these lands reveals several interesting patterns.

An ownership's total timber volume is closely related to its total commercial forest land (Tables 1 and 2, Appendix). Those who own much land tend to own much volume. But size can mask important differences between ownerships. A pattern emerges when the five ownership classes are ranked by average growing-stock and board-foot volume per acre of commercial forest land. Per-acre analyses are useful in washing out the effects of different-size ownership bases.

Owner	*Growing stock rank*	*Average ft³/acre*	*Sawtimber rank*	*Average board foot/acre*
Public	1	1,280	1	3,268
Forest industry	2	1,205	3	3,051
Corporate	3	1,202	2	3,107
Misc. private	4	1,004	4	2,419
Farmer	5	903	5	2,224

While public lands are the smallest ownerships in terms of commercial forest land owned, they have the highest per-acre growing-stock and board-foot averages, a position also held in the previous survey. Pennsylvania's public lands hold a similar position.

Average volume per acre should be positively correlated with the proportion of an ownership's commercial forest land in sawtimber stands. With a slight twist, this is true for New York owners. More than 51 percent of the public forest land is classed as sawtimber stands. This is a substantial percentage but is not the highest. Forest industry has more than 54 percent of its land in sawtimber stands.

The frequent occurrence of plantations on public lands is one reason why the public forests have the highest average volume per acre of commercial forest land, despite not having the highest percentage of sawtimber stands. These plantations typically have higher stocking levels and higher volumes than natural stands of similar age. The forest management philosophy of the public land managers also contributes to the high averages on public lands. Most of the public lands are in state forests and are managed under conservative multiple-use principles. Timber is considered but one of many forest products. Longer timber rotations and resulting higher average volumes per acre are logical under multiple use management because more mature stands have a definite value for recreation, esthetics, and certain wildlife species.

The species composition of the public forests is influenced by the numerous plantations. Planted softwoods seem to account for at least half of the softwood volume on public lands. Softwoods account for more than one-third of the growing-stock and sawtimber volume on public lands, by far the highest percentage among ownership classes. Public lands have about 40 percent of the growing-stock and sawtimber volume of red pine.

Forest-industry lands rank second in growing-stock and third in board-foot volume per acre. Industry foresters, like public foresters, are committed to managing their lands. They strive to ensure that suitable lands are kept productive, a major reason why industry does not have any nonstocked lands and why their per-acre volume averages are high.

The species found on industry lands reflect the fact that most of its land holdings are in northern New York. Red and sugar maple, beech, yellow birch, and the spruces account for two-thirds of forest industry's growing-stock volume. Industry owns one-third of balsam fir's total volume and one-quarter of the spruce and yellow birch total volume.

Little can be said about the other corporate ownership group because it is so diverse. This group includes hunting clubs, utilities, forest-land management companies, real estate speculation companies, and light and heavy industry. Because these owners' goals and objectives run the gamut from commercial development to preservation, there is no obvious explanation for its ranking.

Neither can much be said about the fourth-ranked group—the miscellaneous private sector. This very large, diverse group owns more than 50 percent of the total growing-stock and sawtimber volume. However, the volume per-acre estimates for this group show a sharp drop off from the first three ownerships, which were all closely spaced.

Two factors partially explain the low estimates. First, this group has been buying much of the farmland that has been sold or auctioned. It is reasonable to assume that a fair proportion of this land is in low volume, reverting field status.

Second, more timber is being cut from this group than commonly believed. It is often said, and quite correctly, that this group is not greatly interested in managing their land for timber. However, this does not mean that these owners will not cut timber. They have been harvesting substantial amounts of fuelwood, sawlogs, and pulpwood, and 23 percent of these owners plan to harvest timber in the next decade (Birch 1983).

Farm owners rank last in the growing-stock and sawtimber averages. They have the lowest proportion of sawtimber stands and the highest proportion of immature stands. Quite a few of the low-volume stands are reverting pastures that will probably remain poorly stocked for a while. Hawthorn and pin cherry are common species in these reverting fields, and both are nongrowing-stock species.

Even mature farm woodlots tend to be in poor shape because they typically sustain frequent cuttings for farm and commercial wood products. Cattle grazing and tapping for maple syrup further reduces the vigor of many farm stands.

Biomass

Tree biomass data is a new output of our forest inventory process. This information is important because it provides a more complete picture of our timber resource than does growing stock or the even more limited sawtimber measure. Because tree biomass data needs are relatively new, research continues to develop better sampling, estimation, and analytical methods.

The tree biomass estimates in this report and in "Forest Statistics for New York, 1980" are based on research conducted in New York by the College of Environmental Science and and Forestry of the State University of New York (Monteith 1979). The biomass tables in "Forest Statistics for New York, 1980", represent an attempt to relate the net growing-stock volume of certain components of the resource to their associated green weight. Since the publication of "Forest Statistics for New York, 1980", some concern arose about the validity of publishing the two types of estimates side by side.

An examination of the data does reveal a discrepancy. The problem is that the weight per cubic foot of growing-stock volume is too high. For example, Table 17 in "Forest Statistics for New York, 1980" shows the net growing-stock volume in sawtimber trees as 9,238.0 million cubic feet. The total estimated weight of the sawtimber is 400.4 million green tons. Dividing the weight by the volume reveals that the average cubic foot of wood seemingly weighs about 87 pounds. This is well above the 55 to 60 pounds per cubic foot that would be expected.

An analysis of the methods used to derive the two types of estimates revealed two differences between the methods. First, Monteith included bark in his weight equations while we did not include bark in our volume equations. In addition, Monteith's tree sample included almost ideal trees so

that his equations do not reflect typical cull losses or heights of average trees.

Both the volume and biomass estimates are independently valid and highly usable, but to put them on a more common base, users may wish to reduce the biomass data by the following reduction factors which attempt to net out the effects of bark, cull, and height differences. The bark reduction factor is 14 percent, and is based on information from the New York State Department of Environmental Conservation.

As for a cull and height adjustment factor, one study that examined predicted versus actual biomass yields in a northern hardwood stand found that predicted overstated actual yields by an average of 19 percent (Hornbeck and Kropelin 1983). The authors felt that the difference was largely due to the ideal nature of the trees used to develop the predictive values versus the "real" type of trees encountered in most stands. When taken together, these two adjustment factors seem to explain much of the per-cubic-foot weight discrepancy.

Despite the fact that the two data types are not directly comparable, tree biomass data reveals how much more wood fiber is in our forests than described by the traditional timber measure called growing stock. Whereas the boles of growing-stock trees account for 90 percent of the net cubic-foot volume in trees over 5 inches dbh, growing-stock boles account for 56 percent of the green weight of all live trees on New York's commercial forest land. Other significant components of the tree biomass resource are: tops of growing-stock trees (18 percent), saplings (15 percent), rotten trees (2 percent), and stumps (1 percent).

From a utilization standpoint, nearly all of these fiber sources could be chipped or cut for wood products or fuel, but from a conservation standpoint, nearly all the saplings and many culls should be left uncut. Saplings will comprise the next generation of growing stock. Cull trees have high value for wildlife. Some forest-land managers, in their haste to promote the growth of growing stock, have removed all cull trees from their property. This may be detrimental to wildlife. Tops of already harvested growing-stock trees represent the most logical source of additional fiber. Use of this material for pulpwood and fuelwood has been increasing.

One other interesting statistic from Table 17 in "Forest Statistics for New York, 1980" is the ratio of bole weight to total weight for growing-stock and cull trees. The bole, or main stem in growing-stock trees accounts for more than 75 percent of the total weight of the tree. This is significantly higher than the ratio of 63 percent for cull trees. Since growing-stock trees are of typically better form than cull trees, less growing-stock biomass is in the crown.

Additional biomass data are available from our Broomall office, and a report is being prepared on New York's biomass resource.[1] For an example of what is available, see Table 3 (Appendix). Several observations can be made about these data.

It is interesting to note that in New York, softwoods and hardwoods both have nearly 25 percent of their growing-stock biomass in tops. These group averages mask some divergent species proportions, but they do show that on the average a significant amount of extra fiber is available in the types of trees most commonly harvested for wood products. Obviously, certain products such as sawlogs cannot be cut from tops but fuel, fiber, and pulp products can. Utilization of tops from growing-stock trees for suitable products, where markets exist, should mean less cutting of remaining trees. In turn, this would hasten the development of larger trees that are valued for sawtimber and amenity values.

[1]Wharton, E. Identifying aboveground wood fiber potentials in New York, 1980. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; (in preparation).

The softwood group contains spruce and white pine which have the highest (36 percent) and lowest (16 percent) ratio, respectively, of topwood to total growing-stock weight of any major species. Several resource characteristics are helpful in understanding why this range exists.

One factor that seems relevant is the particular species' shade tolerance. Other factors being equal, shade intolerant species (for example, aspen, paper birch, and white pine) have smaller crowns (and topwood ratios) than those of shade tolerant trees (for example, beech, spruce, and hemlock). This factor seems to explain many, but not all, of the differences in the ratios. Another factor is the maturity of the species, as represented by its diameter-class distribution. Again, other factors being equal, for most of a tree's life, topwood becomes a smaller part of a tree's biomass as the tree ages. We would expect, therefore, to see mature species with lower topwood ratios than younger species. This factor explains most of the ratios that are not explained by the shade tolerance factor, particularly those of sugar maple and red oak.

Sawlog Quality

Sawlog quality is an important component in the assessment of the timber resource. Although several markets that have relied on high-quality trees are being increasingly satisfied by reconstituted or fiber products, high-quality trees are still in demand and provide strong financial returns to the forest-land owner.

Softwoods are not graded except for red and white pine. The pine's quality is not very good under the standards imposed by the grading system. For example, about 80 percent of the white pine volume is in the two lowest grades. Any weevil damage or overgrown knots exceeding 1½ inches puts logs into these lower categories. Both causes of degrade are common.

All of the hardwood species encountered in the survey were graded. There is more high-quality grade 1

and 2 material now than in 1968, but the proportionate amount of grade 1 and 2 slipped slightly because the lower quality grades increased at a faster rate (Fig. 23). It may be said that there are more high-quality trees now, but they are better hidden among the more common, lower quality trees.

An influx of young sawtimber and heavier harvesting pressure on high-quality timber are largely responsible for the proportionately bigger increase of lower quality sawtimber. To be classed as Grade 1, a tree must reach a minimum dbh of about 15.5 inches in addition to meeting defect standards. Young sawtimber trees may be straight, tall, and defect-free, but if they do not meet the dbh standard, they are lowered in quality.

Currently, 13 percent of hardwood sawtimber is in Grade 1, 22 percent in Grade 2, 50 percent in Grade 3, and 15 percent in Grade 4. Importantly, many of New York's commercially valuable trees have better quality distributions than that of the all-species average. In decreasing order, red oak has 26 percent of its sawtimber in Grade 1, white ash—20 percent, basswood—19 percent, white oak—17 percent, sugar maple—16 percent, and yellow birch—14 percent.

The proportion of grade 1 material increased slightly for red oak, sugar maple, white ash, and basswood. The grade 1 proportion declined for yellow birch (from 19 to 14 percent) and white oak (from 21 to 17 percent). New York's hardwood sawtimber quality is slightly better than that for the Northeast as a whole. This slight advantage also is evident for the commercially valuable species. The explanation for the higher than average quality of valued species is closely tied to the fact that except for white ash they all also have higher than average amounts of sawtimber in trees greater than 15 inches dbh.

The proportion of the hardwood sawtimber resource greater than 15 inches dbh is a crucial statistic for many sawmillers because this timber size is so closely tied to log quality. There is substantially more timber greater than 15 inches now than in the last survey, but the proportion of the total sawtimber resource in this class is still about 47 percent (Fig. 24).

With sawtimber growth exceeding removals and average tree diameter increasing, an increase in overall sawtimber quality and quantity is expected. The picture for the commercially valuable species is less clear. The last decade saw some sizable jumps in demand for particular species. Should the demand for quality logs from species such as oak continue to increase, future quality gains for these species could be minimal or nonexistent.

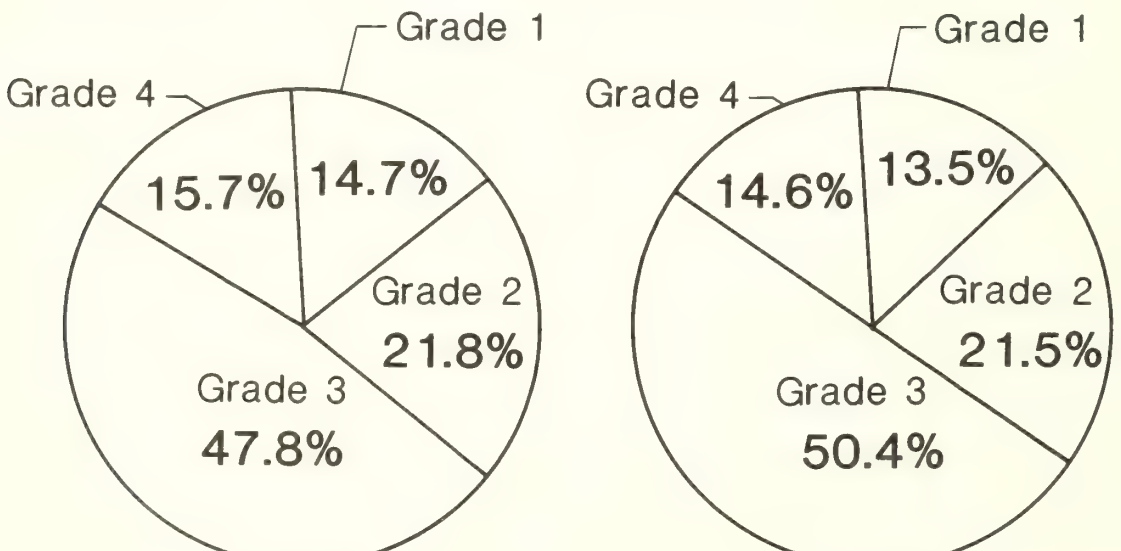

Figure 23.—Hardwood sawtimber quality distribution, 1968 and 1980.

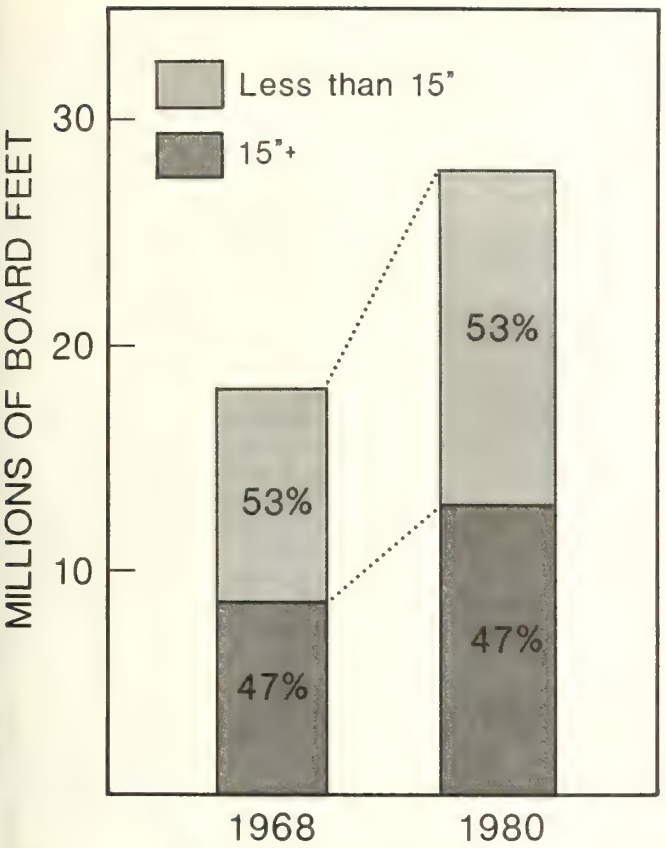

Figure 24.—Distribution of large and small hardwood sawtimber, 1968 and 1980.

Growth and Removals

As we have seen, New York experienced a sizable increase in growing-stock and sawtimber volumes between surveys. An examination of the components of inventory change will help our understanding of the changes and provide a glimpse at what the future might hold.

Between the second and third surveys, average annual growing-stock net growth for all species was 558 million cubic feet, and average annual removals were 196 million cubic feet. The ratio of growth to removals was more than 2.8 to 1. Timber growth averaged about 37 cubic feet per acre per year.

The average annual removal figure of 196 million cubic feet is just that, an estimate of the average removals for a year between 1967 and 1979. Current removal levels are in all probability higher than this average annual removals figure because fuelwood harvesting picked up significantly in the mid to late 1970's.

Growth and removals are at a higher level for the 1968 to 1980 period than for the period between the first and second surveys. Encouragingly, growth increased at a faster rate than removals, so the gap between growth and removals widened. Average annual growth increased from 245 to 558 million cubic feet. Average annual removals went from 134 to 196 million cubic feet. Average annual per-acre growth doubled from 18 to 37 cubic feet per acre per year as many immature stands grew to merchantable size and many merchantable stands were allowed to grow.

New York's growth trend is quite favorable when compared to neighboring Vermont and Pennsylvania. Vermont's growth is low, averaging only 24 cubic feet per acre per year. While Pennsylvania's per-acre growth matches that of New York, its total and per-acre growth have been slipping downward. Pennsylvania has a larger oak resource than New York which has borne the brunt of several severe insect and disease attacks.

The growth figures used so far refer to net growth—which is gross growth minus cull increment and mortality. Cull increment is the volume of growing-stock trees that become rough or rotten between surveys. Gross growth is the sum of accretion (growth on the initial inventory) and ingrowth (volume of trees that become larger than 5.0 inches dbh between surveys).

Ideally, mortality and cull increment would be negligible so that net growth would virtually equal gross growth. The ideal situation does not exist in New York. Insect and disease attacks, logging damage, weather, and a variety of other factors reduced average annual gross growth (787 million cubic feet) by 29 percent (229 million cubic feet). Mortality was twice as important as cull increment in reducing growth.

Even though cull increment and mortality were higher for this period than for the period between the first and second survey, the proportion of gross growth lost to these agents dropped from 39 to 29 percent. While New York has improved its proportionate loss and is better off than Vermont (41 percent loss), it still loses proportionately more timber to cull and mortality than Pennsylvania (21 percent).

Average annual inventory change is derived by subtracting timber removals from net growth. Timber removals are more than timber cut for products (Fig. 25). In 1979, timber-product removals accounted for 68 percent of all growing-stock removals. This proportion is lower than the estimate of 82 percent from the previous survey largely because we are better able to quantify timber volume lost to nonproduct uses such as land clearing and reclassification of commercial forest land.

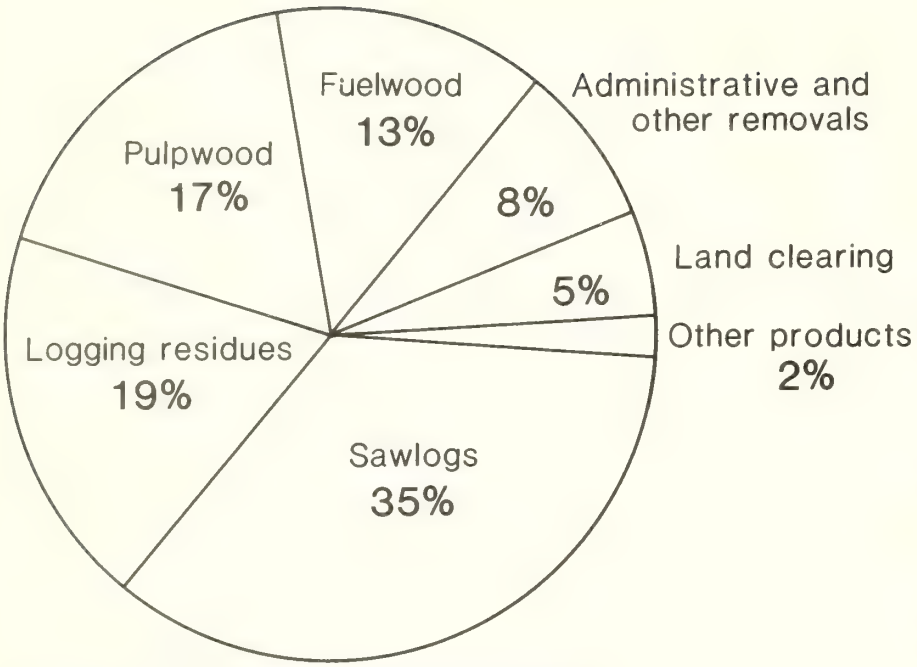

Figure 25.—Timber removals from growing stock, 1979.

Whether we talk about the previous or current survey, logging residues are a significant type of removal. Logging residues, as we calculated them, exceeded the pulpwood harvest from growing stock. But this estimate must be used cautiously because of the way we calculated it.

As part of the survey, field crews conduct timber utilization studies at logging jobs throughout New York. They typically spend about 2 days at each site recording the utilization of harvested material. Any utilization of growing-stock residue, such as upper stems or trees knocked down, that takes place after the crews leave is not tallied. Yet some activities, such as fuelwood cutting, often take place after harvesting is completed.

In all likelihood, our estimate of logging residues overestimates what is left in the woods because some portion of it, perhaps a high portion, has been subsequently cut for fuelwood or other products. This means that a higher proportion of growing-stock removals is going into products and less is wasted than we report.

How much fiber is involved cannot be stated precisely because post-harvest cuttings may be spread over several years. Because logging residues were 18 percent of growing-stock removals at the time of the second survey and because studies have indicated increased utilization rates in recent years (Wharton and Bones 1980), we would expect the current residue proportion to be lower than that of the second survey. For example, if we assume that utilization rates improved a modest 10 percent, the current residue proportion should be 16 percent. The published residue proportion is 22 percent (when land clearing and reclassification have been netted out). So, even under a modest improvement assumption, we are probably overstating residues by quite a bit (13 million cubic feet), and the overstatement increases as the assumed rate of utilization improvement increases.

On a statewide basis, the growth/removals relationship for almost all of New York's species looks favorable. This is understandable considering the often substantial species volume increases discussed earlier. Only elm has negative growth. Many of the commercially valued species enjoyed growth rates that were at least double their respective removals rates.

Most commercially prized species had annual growth rates between 3.0 and 3.5 percent of their respective 1980 inventory. One exception was the select white oaks, which are highly prized for timber products and highly susceptible to gypsy moth defoliation and mortality. The select white oaks had a low 1.8 percent annual growth rate. The growth rate of oaks in general was below that of the maples and other northern hardwoods. Insect attacks on the northern hardwoods were not common, but the 1970's saw the oaks suffer a number of defoliations. Some species, such as aspen, which showed substantial ingrowth, had probably unsustainable annual growth rates of about 5 percent.

At geographic levels below the state level, growth and removals data rapidly begin to lose reliability, especially for less common species. Average annual regional growth and removals for some selected species and regional totals for 1967–79 are:

Selected species	Northern		Southwest		Southeast	
	Growth	Removals	Growth	Removals	Growth	Removals
	Million cubic feet					
White & red pine	22	8	6	2	19	12
Hemlock	10	5	15	6	20	5
Red maple	36	12	35	3	20	3
Sugar maple	37	18	33	13	24	7
Red oak	3	4	18	5	13	5
Regional total	198	87	217	57	143	52

The positive growth/removals relationships at the state level for these species are evident at the regional level except for red oak in the Northern region. Our best estimates show a slight red oak volume decline for the combined three Adirondack units. Fortunately, this slight decline is more than offset by increases in the Southeast region (Capitol District and Catskill-Lower Hudson units), and the Southwest region (Lake Plain, Southwest Highlands, and South-Central Highlands units).

A common concern about our data is that growth and removals data are not presented with the same detail as forest area and timber volume data. A discussion of priorities in conducting our surveys should explain why we cannot publish detailed growth information.

For many decades, the Forest Service and many state forestry organizations have been worried about potential shortfalls in timber supply. Remember how New York forests were cut over and cleared about a century ago? The Forest Inventory units around the country were set up to monitor the timber resources of the various states and sound a warning if timber depletion was detected.

Concern about current timber inventory levels definitely influenced the way forest surveys have been conducted. If you enter a state to do an inventory after being absent for 10 to 15 years and if the current status of the timber resource is the major concern, you design your survey to see what is in the woods at that particular time.

Research based on this priority indicated that we should use a sampling design called *S*ampling with *P*artial *R*eplacement (SPR), which is a very cost-effective estimator of current conditions (Bickford, Mayer, Ware 1963). Under SPR you use relatively many new ground (newly established) plots and relatively few remeasured plots. The numerous new ground plots are the basis for forest area and timber volume estimates but provide no growth data since they were put in during the current survey. Remeasured plots contribute to the area and volume estimates and are the primary source for growth and removals estimates. Because remeasured plots are outnumbered by a wide margin (2,502 forested new ground plots versus 698 remeasured 1/5-acre plots), the remeasured plot estimates are less reliable and cannot be published in as much detail as estimates based primarily on new ground plots.

Over the last several decades, forest surveys have shown a timber surplus not only in New York but also in many eastern states. The luxury of a timber surplus allows us to ask questions like "Where is the resource now headed?" To answer these questions, we need growth and removals data. We now recognize the need for this data and are taking a number of steps to improve the reliability of our growth data. Research is being conducted on methods to derive growth data from another type of remeasured plot—the 10-point prism plot. And starting in Maine, the next state after New York to be surveyed, we established many more plots suited for remeasurement for growth and removals. Unfortunately, this will not help New York during the next survey. Our best hope for improving growth data for the next survey is likely to involve the technique using 10-point remeasured plots.

Timber Products Output

Data on the output of timber products in New York come from a variety of sources. The most significant source was a survey of the primary timber industry in 1979 (Nevel et al. 1982). Based on data from that survey and from surveys conducted of New York logging operations[2] and residential fuelwood consumers (NYS 1981), four tables were developed to show timber products output. These tables are numbered 35 to 38 and may be found in "Forest Statistics for New York, 1980" (Considine and Frieswyk 1982). You need a copy of the statistical report to follow this section. Comparisons with 1967 data are based on Tables 23 to 27 in Ferguson and Mayer (1970).

Only in this section will I refer to specific products output tables (35 to 38) in the statistical report to help relieve the confusion surrounding their use and value.

Because they are developed from several sources, some confusion exists about the timber products output tables. A brief explanation of their function may be beneficial. Table 35 presents the timber products output for each type of product by the two major fiber sources—roundwood and manufacturing residues. Because roundwood is a broad category that includes growing stock, Table 36 breaks down the timber products output from just roundwood by type of product (as in Table 35) and type of roundwood. The table total for Table 36 (417,894 thousand cubic feet) is a column total in Table 35.

Most of the forest inventory process is concerned with growing stock. Table 37 adds the growing-stock information on products to estimates of other removals from growing stock (and sawtimber). These other removals, the bottom three categories in Table 37, are used to round out our picture of total growing-stock removals *for the year* that the industry survey was conducted. The total growing-stock removal shown in Table 37 will differ from the average annual removals figure in other tables because Table 37 shows data for a specific year.

As you progress from Table 35 to 37, you are continually focusing on a narrower segment of the timber products output and its sources. Table 38 is useful in tracking the efficiency of resource use and the level of primary processing production. It shows how much residue is available at several categories of primary processing facilities.

Starting with the broadest picture, Table 35 reveals that the total removal of timber products from all sources came to about 455 million cubic feet in 1979. This was more than a 200 percent increase from the 1967 level of 150 million cubic feet. As shown later, a dramatic increase in fuelwood consumption was largely responsible for this gain.

The 1979 and 1967 figures used in this section are different from the removals figures mentioned in the growth and removals section because the figures used here are *not* average annual figures. The figures here are for a specific year and help determine whether current removals are above or below the average for the period between surveys. They also show the products that the removals were made into, which is something the average annual removals do not show.

About 92 percent of the 1979 production came from roundwood sources that include tree tops and whole-tree chips. The remaining 8 percent came from manufacturing residues that are mostly sawmill waste wood.

The use of manufacturing residues for products increased markedly between 1967 and 1979, from 17 to 37 million cubic feet. Paper companies and fuelwood burners have recognized the value of clean, heretofore economical chips produced from sawmill slabbings and edgings. Demand for this fiber material is high as shown by the following. While sawlog production increased from 56 million cubic feet in 1967 to 92 million cubic feet in 1979 (a 64 percent increase), the volume of unused sawmill residue dropped from 7.7 to 2.7 million cubic feet (a 65 percent decline). Increased utilization of sawmill waste is beneficial from several aspects. For example, less standing timber has to be cut and this extends our timber supply.

Although the increased use of residues accounts for some of the increased timber output, the increased use of roundwood accounts for a far greater share. Roundwood consumption increased by 285 million cubic feet versus 20 million cubic feet for the residues.

Table 36 shows timber products output from the various types of roundwood. The bole of growing-stock trees was the largest roundwood source. It accounted for 41 percent of the roundwood production and 37 percent of total production. Remember, roundwood *and* manufacturing residues equal total production. In descending order, salvable dead trees (29 percent), other sources (24 percent), and cull trees (6 percent) account for the remaining roundwood production. The sizable proportion attributable to salvable dead trees is due to the apparent fuelwood consumption which is more fully described later. A variety of timber products come from New York woods. For many decades, industrial products like lumber, pulp, veneer, posts, poles, and pilings exceeded the production of fuelwood. Apparently, this trend dramatically reversed itself with the energy crisis in the 1970's. Table 35 shows that fuelwood production in 1979 accounted for 63 percent of New York's total product output. In descending order, the industrial products, which account for the remaining share, were sawlogs (20 percent), pulpwood (16 percent), and miscellaneous products (1 percent). The majority of the fuelwood is reported to have come from salvable dead trees (NYS 1981).

[2]Wharton, E.; Birch, T. Changing patterns of timber use: the situation in New York. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; (in preparation).

Readers may remember that Figure 25 showed several types of removals that ranked ahead of fuelwood. Figure 25 was solely for removals from growing stock and is based on data from Table 37. Since most of the fuelwood harvest comes from dead trees, it seems that the sizable fuelwood harvest is not having a significant impact on the growing stock.

Less clear is how long the deadwood resource can support such harvesting levels. Naturally, once this resource is exhausted, other sources such as growing stock would be tapped. Many birds and mammals would be negatively affected by the elimination or severe reduction of the deadwood resource which they use for nesting and feeding.

No estimate of the size of the deadwood resource is available, but Table 33 shows average annual mortality to be 152 million cubic feet. The fuelwood harvest from salvable dead trees in Table 36 is estimated to be 119 million cubic feet. If I assume that some dying timber is simply unavailable for whatever reason, it would seem that fuelwood harvesters are now just about harvesting the amount that dies each year. This is a difficult hypothesis to accept.

If it is true that most of the trees currently dying are being harvested, then the next forest survey of New York should show a sharp decline in the number of standing snags, since few new ones will replace those that fall. The implications for wildlife will be severe if this is true.

I have been cautious about using the fuelwood data. To show why, an explanation of the fuelwood data is required. The fuelwood data are a combination of the timber industry survey (industrial consumption) and a phone sample conducted by the New York State Department of Environmental Conservation (residential consumption). The Forest Inventory and Analysis unit exercised no control over the phone survey. The results of this phone survey are responsible for the huge fuelwood estimate which greatly influenced the production total.

Although we included it in our production figure, we have concerns about the fuelwood data and urge caution in using it. The estimate seems to be high in relation to total industrial production.

If the fuelwood estimate is right, it exceeds industrial production by 115 million cubic feet (68 percent). This possibility does not seem likely because of New York's active and substantial forest industry. One potential problem with the survey is that respondents were asked how much wood they burned without being tested to see if they knew how much wood was in a cord. People tend to underestimate the amount of wood in a cord, so the survey results likely overestimated true consumption. Overestimation of consumption would mean the fuelwood estimate and our total removals figures for 1979 are too high.

Much more confidence can be placed in the data on the industrial products. An indepth discussion of the current timber industry is contained in a report by Nevel and others (1982). An historical perspective is presented by Canham and others (1981). A summary of the industrial timber product situation would state that sawlogs continue to be the number one industrial product, and, as expected with a maturing resource, sawlog production has increased. A similar trend exists for pulpwood, the number two product. Unlike fuelwood, virtually all the sawlogs (96 percent) and most of the pulpwood (60 percent) came from growing stock (Table 36). Importantly, even though production of sawlogs and pulpwood jumped, both growing-stock and sawtimber volumes increased. There is room yet for more timber harvesting.

Timber Outlook

For the most part, the 12 years since the previous survey of New York have been good times for the state's forests. The outlook for the next 30 years is favorable based on our projections of commercial forest-land area and growing-stock growth, removals, and inventory to the year 2010. The projections resulted in the following estimates for the coming decades:

Resource category	*1980*	*1990*	*2000*	*2010*
	Thousand acres			
Commercial forest land	15,406	16,194	15,402	14,649
	Million cubic feet			
Softwoods				
Growth	118	124	118	112
Removals	44	56	65	76
Inventory	3,867	4,799	5,157	5,349
Hardwoods				
Growth	440	463	440	418
Removals	152	215	274	350
Inventory	11,903	15,305	16,614	16,693
All species				
Growth	558	587	558	530
Removals	196	271	339	426
Inventory	15,770	20,104	21,771	22,042

Commercial forest land is projected to continue to increase for about the next decade and decline for the following two decades. The increase will be caused by the same factors that have been at work throughout the last several decades. However, the increases will be at a slower rate because there is not as much marginal farmland as before. The increases will not occur in all counties. As happened between 1968 and 1980, the counties around cities should experience further forest-land decreases.

After another decade of increases, the New York forest-land base will start to slide downward because more forest land will be cleared for housing and business developments. The decline is not expected to be as sharp as it was in the 1800's, but it will be noticeable because it is likely to be more rapid in suburban counties around metropolitan areas. Because of where the losses will occur, they will impact outdoor recreation opportunities, esthetics, and suburban wildlife populations more than the timber supply, which tends to come from more rural counties.

The assumptions used to develop the volume projections were considered realistic but conservative. Growth per acre of commercial forest land is not assumed to increase even though New York's forests are growing at 36 cubic feet per acre per year but are capable of growing almost twice as much. Removals are assumed to increase between 3 and 4 percent per year, which is slightly below the rate between 1968 and 1980. Removals are not expected to increase at the rapid 1968–80 pace because fuelwood use is expected to level off. Fuelwood accounted for much of the increase in the removals rate between surveys.

Under these conservative assumptions of flat growth per acre and increasing removals, timber inventories continue to build. Even in 30 years, removals will not equal growth. Any improvement in growth or slowing of removal increases will only build timber inventories faster.

Many factors can change during the course of three decades that could invalidate the projections. Perhaps then the most realistic analysis should be to see what the projections show for only the coming decade. The basic assumptions are less likely to radically change during this shorter time frame.

If the projections are valid, New York will have about 25 percent more growing-stock volume in 1990 than in 1980. Average volume per acre estimates will increase from 1,024 to 1,241 cubic feet. The growth/removals ratio will be narrowing but still will be more than 2 to 1. These indicators are all positive.

The species mix of New York forests is likely to continue to change during the decade. Hardwood volume is increasing at a faster rate than softwood volume so that the past trend of hardwoods assuming a larger share of the volume total will continue. Elm is one species that is almost certain to record another volume drop; and red pine, select white oaks, and basswood are vulnerable to volume dips because of low-volume increases throughout the last decade.

The majority of species, however, should continue to post volume increases. Red maple's increase is likely to propel it to the number one spot on the growing-stock volume list. Sugar maple and some other northern hardwoods such as aspen, cherry, and ash should increase faster than average; but beech, because of disease problems, and yellow birch, because of commercial demand, should have below average increases.

The oaks, especially the quality species such as red and white, are

likely to show lower than average increases. The reasons for the underperformance of oaks are the boom market for quality oak and the gypsy moth. Oaks then are likely to have a smaller share of the volume total in 1990 than they currently do.

We probably will see a continuation of the trend of farmer-owned forest lands being sold to private individuals. Parcelization of the forest land is likely to continue, especially in developing areas. Awareness of the forest as a resource that supplies us with essential commodities will increase, as will the pressures to increase the supply of these commodities. This means that landowners will see more public recreational pressure on their lands and more interest from loggers trying to purchase their timber.

New York's closeness to many major markets and its adequate wood supply point to a promising future for existing forest industries unless state tax, labor, and land use constraints become too severe. Under favorable conditions, there also seems to be room for increasing the forest-industry base, either by expanding the capacity of current facilities or opening new mills. Opportunities are present to utilize high-quality wood, but there are even more opportunities to utilize low-quality wood. This is because the supply of high-quality wood is much lighter than the supply of low-quality wood. New York's diverse forests still contain underutilized tree species.

Recent technological advances in low-quality wood processing and price increases for competing products have put many products made from low-quality wood in a favorable position. Two particularly successful examples are pallets and reconstituted panel products. Beside generating jobs and tax dollars, mills using low-quality fiber would provide sorely needed markets for landowners wishing to practice cost-effective forest management.

One potential threat to some forests and waters in New York and the Northeast is acid deposition. Acid deposition includes acidic rain, snow, fog, aerosols, and cloud moisture. Acid deposition has been hypothesized to be the cause for the disappearance of fish and other aquatic life from a number of lakes and the decline of red spruce in some high-elevation forests. In New York, these environmental problems have been mostly observed in the Adirondack Mountain region.

The effects of acid deposition on New York waters are beyond the scope of this report, so the rest of this discussion will focus on the imperfectly understood impacts of acid deposition on forest land. Research designed to assess and explain the effects of acid deposition on forest land mostly has been carried out in high-elevation, boreal forests of spruce and fir. These forests are thought to be among the most sensitive to acid deposition.

In New York, high-elevation, boreal forests typically occur in the Adirondacks and Catskills, on state-owned, preserved lands of the parks. Because the Forest Inventory and Analysis unit did not take plots on preserved lands, we have no trend data for these types of forests and will rely, therefore, on data summarized by other researchers (Johnson and Siccama 1983).

The High Peaks of the Adirondacks. Mount Marcy is in the center and is the state's tallest mountain. Dead spruce trees are common in the photo. The mortality is probably linked to acid precipitation.

Courtesy: Mike Storey, Adirondack Park Agency

What their data show is a decline of mostly red spruce in the high-elevation forests over the last 15 to 20 years. Red spruce declined in basal area and density and across all diameter classes. On some plots, tree species such as balsam fir and paper birch also declined, but on other plots these two species increased. So the concern is mostly with red spruce. Because spruce was a significant component of these forests, the overall health of these forests has declined. For the sake of comparison, spruce volume (all species) increased by 20 percent on Forest Inventory and Analysis plots taken at lower elevations.

Several questions arise from the observations of these researchers concerning spruce decline. First, "Does the dieback represent an early phase of pollution-induced ecosystem destabilization that will lead to essentially permanent changes (for example, changes in species composition or reduced productivity), or is the dieback a relatively short-term periodic phenomenon that occurs naturally in ecosystems that are stable when viewed over longer time spans?" (Johnson and Siccama 1983). This is an important question because diebacks of trees at high elevations have been noted before, as long ago as the 1800's. Second, "If acid deposition is negatively impacting high-elevation forests, what other forests are susceptible?"

The answers to these questions do not exist at the present time, but insights have been gained from the research. Briefly, it seems that the mortality probably is related to an environmental stress or combination of stresses. Acid deposition may be a contributing stress factor, but several noted researchers have concluded that acid deposition *alone* is not causing the dieback. As mentioned, diebacks have been seen previously. Drought is thought to be a significant factor, as are secondary agents such as diseases (Johnson and Siccama 1983).

These researchers also agree that adequate data are not available to make conclusions about ecosystem destabilization. They agree that more research is needed, and indeed, acid-deposition research is increasing in the Northeast. The USDA Forest Service, Northeastern Forest Experiment Station, is directing several phases of acid-deposition research. The Forest Inventory and Analysis unit will be taking plots in high-elevation forests during New York's next forest survey to broaden the forest data base on these susceptible forests. Existing plot data on lower elevation forests are currently available to researchers. Also, Forest Service research units in five northeastern states have research programs studying the effect of acid deposition on forest water quality, tree diseases, forest soil conditions, and forest ecosystem health.

It is obvious that New York forests are dynamic and subject to many changes. Some changes cannot be halted, but men and women have the ability to exert a significant impact on the quality of the New York forest resource. These opportunities are discussed in detail in the next section.

Forest Management Opportunities

The forests of New York are generally not the result of forest management but the result of natural forces that regenerated the land after the extensive cutting and widespread fires that occurred about a century ago. The projections we have made for the next 30 years show timber volume continuing to increase under today's minimal management levels. The state seems to be adequately endowed with water, fish, wildlife, and recreation resources and opportunities. If today's forests cannot be attributed to forest management, why should we discuss forest management opportunities?

Two major and related reasons why New York landowners should consider forest management are: (1) despite the overall positive findings of the third survey, some problems still exist in New York's woods and, (2) through forest management, individual landowners and society can increase the level of forest benefits. Forest-land management usually results in multiple benefits, that is, an increase in timber production, wildlife habitat, recreational opportunities and possibly water quantity. Here are some of the opportunities that landowners have.

Wood, whether for sawlogs, firewood, or some other product, is one of New York's foremost forest resources. Although net growth is more than twice the volume of removals, and inventories are increasing each year, there are opportunities to increase timber yields and improve timber quality for those landowners who may wish to do so.

One approach is to increase net growth by reducing cull increment and mortality (the two factors that reduce gross growth to net growth). For the period from 1967 to 1979, the annual loss due to cull increment was 77 million cubic feet, and the annual loss due to mortality was 152 million cubic feet. Management can be useful in reducing losses from the three major causes of mortality and cull increment: wildfire, disease, and insect attack.

Fire protection has been very successful in the last 50 years. The total number of forest fires and acres burned decreased, and the number of fires larger than 10 acres fell significantly. The major threat of fire is in the spring. There is a second, less severe, fire season in the fall.

Since most wildfires are caused by man, landowners can take steps to prevent such fires. One approach is through education of landowners and the people who may use their forest land. Owners should learn to recognize and eliminate hazardous conditions, both natural and manmade. Owners can clean out heavy accumulations of dead and fallen trees and remove debris along roads or in-use areas. Burning of debris such as leaves or brush should be done carefully, and only after consulting local forestry officials on fire danger conditions. Roads and trails can be constructed to open inaccessible areas and to serve as barriers to the spread of a fire. Safety strips around public-use areas, railroad rights-of-way, and public access roads are other means of preventing fire.

Not all fire is harmful to forests. Skilled application of a controlled fire can reduce hazardous accumulations of fuel, help control insects and diseases, prepare planting sites, eliminate undesirable plant species, and improve wildlife habitat. Such prescribed burning should be planned and conducted only by people trained in the use of this management tool.

Disease of forest trees contributes much to cull increment and mortality. There are many diseases that infect hardwood species, but the major problems result from heart rots, root rots, and stem cankers. Most diseases enter a tree through an infection court such as a scar, a branch stub, or a stump. It is important, therefore, to harvest trees and haul them from the woods carefully so as not to damage remaining trees. Fire is closely related to disease in that it damages many hardwoods by burning away enough of the bark to create entrances for disease. Decay also is common in trees that originated from sprouting high on a stump.

Several management activities can reduce the impact of disease. Maintaining a healthy, vigorous, and fast-growing stand is beneficial. The faster a tree grows, the sooner open wounds will heal which shortens the time that such wounds will be susceptible to attack. Improvement cuts to eliminate diseased trees and thinnings to stimulate growth will help. Eliminating decayed trees and shifting the growth potential to sound trees will result in a higher usable yield of wood volume at the time of final harvest. In selecting a potential crop tree from a group of sprouts, choose a fast-growing stem that has a low origin (at or below ground level). When cutting trees, stumps should be kept as low as possible to minimize high-stump sprouting.

Thinning a timber stand lets the remaining trees grow faster, stimulates shrub growth on the forest floor, and usually provides wood products like firewood.

Insect pests also have created problems. Northern hardwood stands have suffered attacks from the forest tent caterpillar (late 1970's), saddled prominent (late 1960's), and cherry scallop shell moth (first seen 1969). Pine stands suffer attacks from the red pine scale and white pine weevil. But the insect receiving the greatest attention is probably the gypsy moth.

Gypsy moth was first seen in New York in 1922. Populations of the bug have fluctuated over the years, but the early and late 1970's were times of high-population levels and extensive tree defoliation. In 1980, New York had nearly 2.5 million acres of forest land defoliated (USDA Forest Service 1981).

Gypsy moth and other insects and diseases are changing the species composition of some forest stands.

Despite their lifeless appearance while defoliated, most trees do not die from a single defoliation. A study in Pennsylvania's Pocono Mountains in the early 1970's showed that cumulative mortality from gypsy moths was 13 percent over a 5-year period. During the subsequent 5-year period, growth more than made up for mortality in most stands. Some stands suffered heavy mortality, but most had more volume and value at the end of the decade than before the infestation (Gansner and Herrick 1979).

This study covered one cycle of defoliation. Because many trees were not killed, it is likely that the cycle will be repeated; so, concern exists about the long-range impact of the insect. Concern exists because the gypsy moth's preferred foods include some highly valuable species (adapted from Houston and Valentine 1977):

Most Preferred Trees

Class 1

Chestnut oak
White oak

Class 2

Black oak
Northern red oak
Scarlet oak
Scrub oak

Class 3

Adler
American basswood
Apple
Bigtooth aspen
Gray Birch
Paper birch
Post oak
Quaking Aspen

Intermediately Preferred Trees

Class 4

American beech
American chestnut
American elm
American hornbeam
Black cherry
Blackgum
Black walnut
Butternut
Common persimmon
Cucumbertree
Eastern hemlock
Eastern hophornbeam
Eastern white pine
Flowering dogwood
Hackberry
Hickory
Pitch pine
Red maple
Red pine
Sassafras
Slippery elm
Sugar maple
Virginia pine
Witch-hazel

Least Preferred Trees

Class 5

Black locust
Eastern redcedar
Red spruce
Scotch pine
White ash
Yellow-poplar

As long as oaks account for about 25 percent of a forest stand's composition, that stand probably will be susceptible to defoliation. New York still has many stands of relatively pure oak, particularly in the southeastern part of the state, so future defoliation cycles are expected. These defoliations will continue to be a great nuisance because southeastern New York is a high-population area, and few people enjoy having thousands of caterpillars crawl over their property or denuding favored forested recreational settings.

Landowners have several options to reduce the threat of defoliation. They can have their land sprayed with chemical or biological agents during the proper time of the year, or they can reduce the number of preferred food trees in their woodlot. Spraying can buy time for the landowner to allow timber harvest of valuable trees, but it is not a long-term solution because it is expensive and it keeps susceptible trees alive. Timber harvesting to alter the forest type is a better long-run solution. Nature may alter the forest type if the landowners do not. Landowners should not eliminate all oak and aspen from their woodlot as these trees are valuable for wildlife and several oak species yield very valuable timber. Foresters from private consulting firms, forest industry, and the New York State Department of Environmental Conservation can help landowners choose what is best for their land.

Sometimes there is little that the landowner can do to reduce tree mortality on his or her forest land. If the area should sustain heavy mortality and there are markets available, salvaging the dead material as quickly as possible will allow at least something to be recouped from the loss. There may be difficulties where access to dead material is inadequate or where the dead material is scattered throughout the stand. Where possible, salvage is an important timber management practice.

Besides reducing the impact of insects, diseases, and wildfires, landowners can further improve the vigor of their woods by concentrating growth on select trees. This is done by adjusting the stocking of the timber stand, which involves removing some cull and low-value trees. Many of these trees are suitable for fuelwood. Some cull trees should be kept because they are home to many forms of wildlife. The stocking level for maximum growth is fairly broad, but for high-quality sawtimber, is usually in the category that Forest Inventory and Analysis calls medium stocking (60 to 99 percent).

If trees of any size or quality are considered, very little (6 percent) of New York's forest land is poorly stocked (Fig. 26). A much greater portion (33 percent) is overstocked—where timber growth may be slowed because of too many trees.

For those concerned with timber production, stocking analysis based solely on growing-stock trees is more meaningful. Such an analysis shows that the woods do not appear to be in as good a shape as when all trees were considered. Using only growing-stock trees in the stocking calculation shows that nearly one-fifth of the forests (2.7 million acres) are poorly stocked. Cull-tree removal on these acres would improve the chance of developing acceptable stocking of growing-stock trees.

At the other end of the spectrum are those stands with too many growing-stock trees. About 8 percent of the forest land (1.3 million acres) is overstocked with growing-stock trees. Here cull-tree removal would be useful, but more important would be a thinning to reduce the number of growing-stock stems so bigger trees could be grown faster. Fully stocked stands cover more than one-third of the forest land (5.3 million acres). Many of these stands could probably be thinned to improve the quality of their growth, but it is not as urgent as for the overstocked stands.

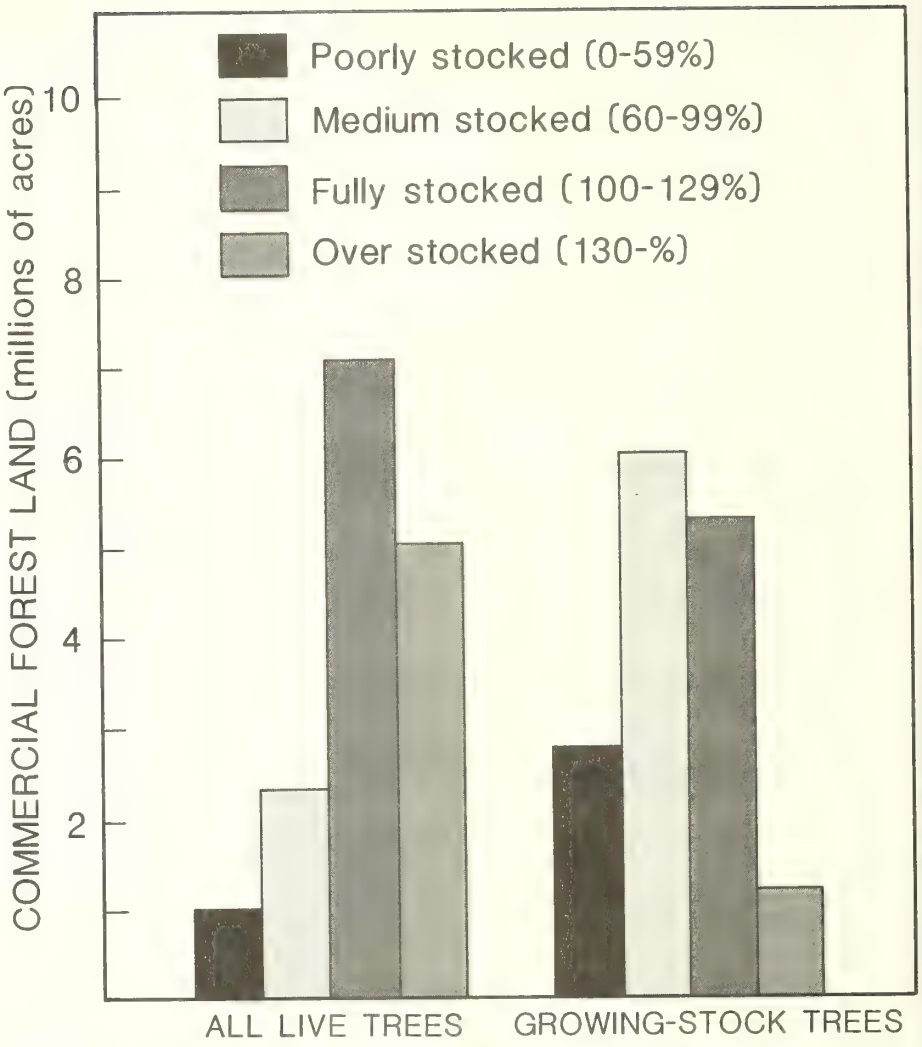

Figure 26.—Comparison of stocking based on all live trees versus growing-stock trees.

The largest amount of land (39 percent) is covered with medium-stocked stands. These are the ones with the proper stocking for high-quality sawtimber growth. Other than thinning to focus growth on particular trees, these stands could be left alone.

To gain a general picture of the timber management practices needed in New York forests, our field crews placed each forested new ground plot they measured into one of four recommended treatment classes. They also evaluated past management practices on the plot. The following table shows that 41 percent of New York's commercial forest land is in good enough shape to be left alone as far as timber growth is concerned. This just about equals the above mentioned proportion of stands with medium stocking.

The fact that our crews gave these acres a recommendation of no treatment necessary for timber does not mean that landowners could not pursue management activities for other forest benefits. Recommendations for improving nontimber benefits were not made by our field crews.

Past treatment	Recommended treatment				
	Harvest mature stand	Timber stand improvement	Stand conversion	Stand on schedule	Total
	Thousand acres				
Clearcut	74.9	352.2	26.2	432.7	886.0
Selective cut	653.5	1,247.0	163.4	1,470.1	3,534.0
No evidence of harvest in 25 years	1,601.9	3,234.0	1,608.4	4,474.1	10,918.4
Reserved from cutting by owner	19.3	18.3	18.0	11.8	67.4
Total	2,349.6	4,851.5	1,816.0	6,388.7	15,405.8

Surprisingly perhaps, most hardwood stands seem to need less cultural treatment than softwood stands. Over half of the area in oak/hickory, aspen/birch, and elm/oak/red maple stands can be left alone. Only 30 percent of white and red pine and hemlock could receive no treatment. We will see shortly what treatments they need.

Nearly 5 million acres could use some form of timber stand improvement (TSI). Cull tree removal and thinning to get more acres into medium stocking were the most frequently recommended treatments. Softwood types such as white and red pine and hemlock (37 percent) and spruce/fir (38 percent) have the highest proportion of stands needing TSI. Most of these would need thinning as opposed to cull tree removal.

More than 2.3 million acres were felt to be mature enough to be recommended for harvest. As with the TSI recommendation, white and red pine and hemlock had a higher land-area proportion in this recommended class (24 percent) than that of oak/hickory (17 percent) or northern hardwoods (16 percent). These proportions should not be a surprise because we have already seen that the white and red pine and hemlock type is quite mature. It had the highest proportion of its area in stands averaging more than 6,000 board feet per acre (27 percent) and had two-thirds of its area in sawtimber stands.

Finally, the first data entry in the table requires an explanation because it is not readily apparent how a stand that has been clearcut can be ready for harvest. Actually several plots had been severely highgraded with only snags and whips left. The crews felt that these were "commercial" clearcuts and that the best treatment was to harvest or knock down what was left and start over.

This discussion of recommended treatment opportunities is no substitute for an on-the-ground inspection by a professional forester. Private consultants, the Division of Lands and Forests, USDA Forest Service, USDA Soil Conservation Service, and forest industries are some of the most important people and agencies that a landowner can turn to for assistance on all aspects of forest management. Our field crews provided this information to portray broad management opportunities for timber production only at this extensive level.

Timber-growing guides based on research by the USDA Forest Service have been published for northern hardwoods (Leak et al. 1969), paper birch (Safford 1983), oak/hickory (Roach and Gingrich 1968), white pine (Lancaster and Leak 1978), spruce/fir (Frank and Bjorkbom 1973), and Allegheny hardwoods (Roach 1977, Marquis and Bjorkbom 1982).

Another important way in which a landowner can increase wood production is to strive for greater utilization when trees are cut. This means using the logging residues, such as branches and other wood above the merchantable bole, as much as possible. Material that is unacceptable for pulpwood may be useful for firewood, and if not useful for firewood, perhaps it can be chipped for pulp, fuel, mulch, bedding, or any of the many uses that cellulose has.

However, it is not always economical to use residues because of high extraction and transportation costs. There is nothing inherently wrong with leaving some or all residues onsite because these residues have several positive values. Residues supply the soil with nutrients and organic matter, act as physical barriers to erosion, and ameliorate soil temperatures (Staebler 1979). Nonetheless, the recent trend has been a growing appreciation by loggers and wood processors of this previously ignored resource, and utilization rates have been increasing.

Management practices to enhance wildlife populations are often compatible with those needed for timber production, but modifications of the timber harvesting plan may be necessary. Forest management for some game and nongame species may be desirable because a maturing

forest means changing habitats for animals and birds (Keller 1982). Because each species of wildlife has its particular needs for food and shelter, a landowner often has to consider what kind of wildlife habitat is on surrounding land when planning wildlife habitat work. A number of publications are available detailing the habitat requirements of various species and ways to achieve better wildlife habitat (Decker et al. 1983, Kelley et al. 1981, Hassinger et al. 1979, Hassinger et al. 1981).

Esthetic enjoyment of forest land is the most important single benefit that private forest-land owners derived in the last 5 years and the one that they expect will be the most important over the next 5 years (Birch 1983). Natural stand development, particularly as the trees become relatively large in diameter and height, can produce stands that are scenic and attractive. A variety of management practices can be applied to forest land to enhance the esthetic enjoyment derived from viewing wooded environments. In fact, managed stands generally have been found to be more attractive than unmanaged stands.

The aspect of esthetics that forest management can control most easily is the structure of forest stands. Three-dimensional spaces can be shaped by varying stand density and canopy height. A variety of forest spaces are possible, ranging from open clearings to dense thickets. To produce forests containing an attractive mixture of stands with a variety of sizes, ages, height, and species composition commonly requires some form of even-age management. Timber production and wildlife habitat management are compatible with this approach.

Openings are very important in a mature forest landscape. The option to determine the number, size, shape, orientation, spacing, and timing of openings provides the landowner or manager with great flexibility in enhancing the esthetic characteristics of the landscape. Generally, the shape of an opening is more pleasing if it is free form and not geometrical. The edges should be feathered (partial cutting of trees near edge to create a transition in heights between areas) so that the openings will blend well with the surrounding area. It is helpful to retain some residual trees in an opening, either in groups or scattered across the areas. In some instances, it may be important to reduce the visibility of openings (especially during the first year or two until they revegetate satisfactorily) through the use of screening or by taking advantage of the natural topography. In other instances, openings can be used to create or enhance scenic vistas of meadows, lakes, streams, rock formations, or distant views. A guide on how to develop trails was published recently (Mapes 1982).

Another type of landscape that can be created by the selection system of management is an unbroken forest with a high percentage of large trees (18 to 30 inches in dbh) in mixture with smaller trees. Large stems are attractive to many people, but unless they are already present in the stand it will take many decades for them to develop. If timber production also is a goal, the normal age used to select trees for cutting will need to be increased so as to grow trees to larger size before individual stems can be harvested. A minimum of 20 years extension normally is required to achieve a significant increase in the size of hardwoods.

Cutting and logging are effective tools in forest management, but they also can result in temporarily unsightly conditions. Logging and skid roads should be carefully planned, constructed, maintained, and even-

Many people believe that cutting trees accelerates erosion of forest soil. This effect, however, usually is slight. Erosion on ill-managed logging roads far exceeds soil losses resulting from other uses of forest land.

tually revegetated unless permanent access is desired. Logging equipment should be compatible with soil and site conditions. Also, several cutting practices to reduce the negative visual impact of logging residues should be employed.

New York's forestry community, represented by the Empire State Forest Products Association, the Department of Environmental Conservation, and The New York Section of the Society of American Foresters, has developed a set of timber harvesting guidelines designed to promote environmentally sound timber cutting practices. Copies of the guidelines and more information on proper harvesting techniques are available from the Empire State Forest Products Association in Schenectady and Department of Environmental Conservation offices around the state.

In conclusion, as society continues to make increased demands on New York's forests, there are many opportunities to manage our renewable forest resources to meet these needs. The Empire State's forests are resilient and dynamic. We have as much chance of stopping our forests from changing as we do of stopping the ocean's tides (Campbell 1981). With proper management though, we can help our forests to continue to provide the plentiful and desirable benefits that our society has become accustomed to.

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Appendix

Definition of Terms

Accretion. The estimated net growth of growing-stock trees that were measured during the previous inventory, divided by the length of the period between surveys. It includes the growth on trees that were cut during the period, plus those trees that died and were used.

Average annual net growth. The change, resulting from natural causes, in growing-stock or sawtimber volume of sound wood in growing-stock or sawtimber trees during the period between surveys, divided by the length of the period. Components of average annual net growth include the increment in net volume of trees that are present at the beginning of the period and that survive to the end (accretion), plus average annual ingrowth, minus average annual mortality, and minus the net volume of trees that became rough or rotten during the period (cull increment).

Average annual removals. The net growing-stock or sawtimber volume of trees harvested or killed in logging, cultural operations—such as timber stand improvement—or land clearing, and also the net growing-stock or sawtimber volume of trees neither harvested nor killed but growing on land which was reclassified from commercial forest land to noncommercial forest land during the period between surveys. This volume is divided by the length of the period.

Board foot. A unit of lumber measurement 1 foot long, 1 foot wide, and 1 inch thick, or its equivalent.

Coarse residues. Manufacturing residues suitable for chipping, such as slabs, edgings, and veneer cores.

Commercial forest land. Forest land producing or capable of producing crops of industrial wood (more than 20 cubic feet per acre per year) and not withdrawn from timber utilization.

Commercial species. Tree species presently or prospectively suitable for industrial wood products. Excludes species of typically small size, poor form, or inferior quality, such as hawthorn and sumac.

Cull increment. The net volume of growing-stock trees on the previous inventory that became rough or rotten trees in the current inventory, divided by the length of the period between surveys.

Diameter at breast height (dbh). The diameter outside bark of a standing tree measured at 4½ feet above the ground.

Farmer-owned lands. Lands owned by farm operators, whether part of the farmstead or not. Excludes land leased by farm operators from nonfarm owners.

Federal lands. Lands (other than National Forests) administered by Federal agencies.

Fine residues. Manufacturing residues not suitable for chipping, such as sawdust and shavings.

Forest industry lands. Lands owned by companies or individuals operating primary wood-using plants.

Forest land. Land at least 10 percent stocked with trees of any size or that formerly had such tree cover and is not currently developed for nonforest use. The minimum area for classification of forest land is 1 acre.

Forest type. A classification of forest land based on the species forming a plurality of live-tree stocking. The many forest types in New York were combined into the following major forest-type groups:

a. *White/red pine*—forests in which white pine, red pine, or hemlock, singly or in combination, comprise a plurality of the stocking; in New York common associates include red maple, oak, sugar maple, and aspen.

b. *Spruce/fir*—forests in which red, white, black or Norway spruces, balsam fir, northern white-cedar, tamarack, or planted larch, singly or in combination, comprise a plurality of the stocking; in New York common associates include white pine, red maple, yellow birch, and aspens.

c. *Hard pine*—forests in which eastern redcedar, or pitch pine, singly or in combination, comprise a plurality of the stocking; in New York common associates include white pine, paper birch, sugar maple, and basswood.

d. *Oak/pine*—forests in which hardwoods (usually hickory or oak) comprise a plurality of the stocking but where white pine or eastern redcedar comprise 25 to 50 percent of the stocking.

e. *Oak/hickory*—forests in which upland oaks, hickory, yellow-poplar, black locust, sweetgum, or red maple (when associated with central hardwoods), singly or in combination, comprise a plurality of the stocking and in which white or hard pines, or eastern redcedar comprise less than 25 percent of the stocking; in New York common associates include white ash, sugar maple and hemlock.

f. *Elm/ash/red maple*—forests in which elm, willow, cottonwood, or red maple (when growing on wet sites), singly or in combination, comprise a plurality of the stocking; in New York common associates include white ash, sugar maple, aspens, and oaks.

g. *Northern hardwoods*—forests in which sugar maple, beech, yellow birch, black cherry, or red maple (when associated with northern hardwoods), singly or in combination, comprise a plurality of the stocking; in New York common associates include white ash, hemlock, basswood, aspens, and red oak.

h. *Aspen/birch*—forests in which aspen and paper or gray birch, alone or in combination, comprise a plurality of the stocking; in New York common associates include red maple, white pine, red oaks and white ash.

Growing-stock trees. Live trees of commercial species classified as sawtimber, poletimber, saplings, and seedlings; that is, all live trees of commercial species except rough and rotten trees.

Growing-stock volume. Net volume, in cubic feet of growing-stock trees 5.0 inches dbh and larger, from a 1-foot stump to a minimum 4.0-inch top diameter outside bark of the central stem, or to the point where the central stem breaks into limbs. Net volume equals gross volume, less deduction for cull.

Hardwoods. Dicotyledonous trees, usually broad-leaved and deciduous.

Industrial wood. All roundwood products except fuelwood.

Ingrowth. The estimated net volume of growing-stock trees that became 5.0 inches dbh or larger during the period between inventories, divided by the length of the period between surveys.

International ¼-inch rule. A log rule, or formula, for estimating the board-foot volume of logs. The mathematical formula is:

$$(0.22D^2 - 0.71D)(0.904762)$$

for 4-foot sections, where D = diameter inside bark at the small end of the section. This rule is used as the USDA Forest Service Standard Log rule in the Eastern United States.

Land area. (a) Bureau of Census: The area of dry land and land temporarily or partly covered by water, such as marshes, swamps, and river flood plains; streams, sloughs, estuaries, and canals less than 1/8 statute mile wide; and lakes, reservoirs, and ponds less than 40 acres in area. (b) Forest Inventory and Analysis: same as (a) except that the minimum width of streams, etc., is 120 feet, and the minimum size of lakes, etc., is 1 acre.

Logging residues. The unused portions of growing-stock trees harvested or killed in the process of logging.

Manufacturing plant residues. Wood materials that are generated when converting round timber (roundwood) into wood products. This includes slabs, edgings, trimmings, bark, miscuts, sawdust, shavings, veneer cores and clippings, and pulp screening. If these residues are used, they are referred to as plant byproducts.

Miscellaneous private lands. Privately owned lands other than forest industry and farmer-owned lands.

Mortality. The estimated net volume of growing-stock trees on the previous inventory that died from natural causes before the current inventory, divided by the length of the period between surveys.

National Forest lands. Federal lands legally designated as National Forests or purchase units and other lands administered as part of the National Forest System by the USDA Forest Service.

Noncommercial forest land. Productive-reserved, urban, and unproductive forest land.

Noncommercial species. Tree species of typically small size, poor form, or inferior quality that normally do not develop into trees suitable for industrial wood products.

Nonforest land. Land that has never supported forests, or land formerly forested but now in nonforest use such as cropland, pasture, residential areas, and highways.

Nonstocked areas. Commercial forest land that is stocked with less than 10 percent of minimum full stocking with growing-stock trees.

Plant byproducts. Wood products, such as pulp chips, recycled from manufacturing plant residues.

Poletimber stands. Stands stocked with at least 10 percent of minimum full stocking with growing-stock trees with half or more of such stocking in poletimber or sawtimber trees or both, and in which the stocking of poletimber exceeds that of sawtimber.

Poletimber trees. Live trees of commercial species meeting regional specifications of soundness and form and at least 5.0 inches in dbh, but smaller than sawtimber trees.

Productive-reserved forest land. Forest land sufficiently productive to qualify as commercial forest land, but withdrawn from timber utilization through statute, administrative designation, or exclusive use for Christmas tree production.

Primary wood manufacturing plant. A plant that converts round timber into wood products such as woodpulp, lumber, veneer, cooperage, and dimension products.

Pulpwood. Roundwood converted into 4- or 5-foot lengths or chips, and chipped plant byproducts that are prepared for manufacture into woodpulp.

Rotten trees. Live trees of commercial species that do not contain at least one 12-foot sawlog or two noncontiguous sawlogs, each 8 feet or longer, now or prospectively, and do not meet regional specifications for freedom from defect primarily because of rot; that is, when more than 50 percent of the cull volume in a tree is rotten.

Rough trees. (a) The same as rotten trees, except that rough trees do not meet regional specifications for freedom from defect primarily because of roughness or poor form, and (b) all live trees of noncommercial species.

Roundwood products. Logs, bolts, total tree chips, or other round timber generated by harvesting trees for industrial or consumer uses.

Saplings. Live trees 1.0 through 4.9 inches dbh.

Sapling-seedling stands. Stands stocked with at least 10 percent of minimum full stocking with growing-stock trees with half or more of such stocking in saplings or seedlings or both.

Sawlog. A log meeting regional standards of diameter, length, and defect, including a minimum 8-foot length and a minimum diameter inside bark of 6 inches for softwoods and 8 inches for hardwoods.

Sawlog portion. That part of the bole of a sawtimber tree between the stump and the sawlog top; that is, the merchantable height.

Sawlog top. The point on the bole of a sawtimber tree above which a sawlog cannot be produced. The minimum sawlog top is 7.0 inches diameter outside bark (dob) for softwoods and 9.0 inches dob for hardwoods.

Sawtimber stands. Stands stocked with at least 10 percent of minimum full stocking with growing-stock trees with half or more of such stocking in poletimber or sawtimber trees or both, and in which the stocking of sawtimber is at least equal to that of poletimber.

Sawtimber trees. Live trees of commercial species at least 9.0 inches dbh for softwoods or 11.0 inches for hardwoods containing at least one 12-foot sawlog or two noncontiguous 8-foot sawlogs, and meeting regional specifications for freedom from defect.

Sawtimber volume. Net volume in board feet, International ¼-inch rule, of sawlogs in sawtimber trees. Net volume equals gross volume less deductions for rot, sweep, and other defects that affect use for lumber.

Seedlings. Live trees less than 1.0 inch dbh that are expected to survive.

Site class. A classification of forest land in terms of inherent capacity to grow crops of industrial wood. Classifications are based on the mean annual growth of growing-stock trees attainable in fully stocked natural stands at culmination of mean annual increment.

Softwoods. Coniferous trees, usually evergreen and having needles or scalelike leaves.

Stand. A group of forest trees growing on forest land.

Stand-size class. A classification of forest land based on the size class (that is, seedlings, saplings, poletimber, or sawtimber) of growing-stock trees in the area.

Standard cord. A unit of measure for stacked bolts of wood, encompassing 128 cubic feet of wood, bark, and air space. Fuelwood cord estimates can be derived from cubic-foot estimates of growing stock by applying an average factor of 80 cubic feet of solid wood per cord. For pulpwood, a conversion of 85 cubic feet of solid wood per cord is used because of the more uniform character of pulpwood.

State lands. Lands owned by the State or leased to the State for 50 years or more.

Stocking. The degree of occupancy of land by trees, measured by basal area and/or number of trees in a stand compared to the basal area and/or number of trees required to fully use the growth potential of the land (or the stocking standard). In the Eastern United States this standard is 75 square feet of basal area per acre for trees 5.0 inches dbh and larger, or its equivalent in numbers of trees per acre for seedlings and saplings.

Two categories of stocking are used:

All live trees—these are used to classify forest land and forest types.

Growing-stock trees—these are used to classify stand-size classes.

Timber products. Manufacturing plant byproducts and roundwood (round timber) products harvested from growing-stock trees on commercial forest land; from other sources, such as cull trees, salvable dead trees, limbs, tops and saplings; and from trees on noncommercial forest and nonforest lands.

Timber removals. The growing-stock or sawtimber volumes of trees removed from the inventory for roundwood products, plus logging residues, volume destroyed during land clearing, and volume of standing trees growing on land that was reclassified from commercial forest land to noncommercial forest land.

Trees. Woody plants that have well-developed stems and are usually more than 12 feet in height at maturity.

Unproductive forest land. Forest land that is incapable of producing 20 cubic feet per acre per year of industrial wood under natural conditions, because of adverse site conditions.

Unproductive reserved forest land. Forest land that is classed as unproductive, is publicly owned, and is withdrawn from timber harvest.

Unused manufacturing residues. Plant residues that are dumped or destroyed and not recovered for plant byproducts.

Upper-stem portion. That part of the main stem or fork of a sawtimber tree above the sawlog top to a diameter of 4.0 inches outside bark or to the point where the main stem or fork breaks into limbs.

Urban forest land. Noncommercial forest land within urban areas that is completely surrounded by urban development (not parks), whether commercial, industrial, or residential.

Planning and Designing the Survey

New York's third forest survey was planned and designed to satisfy national, regional, and state information needs in an efficient manner. We used the 1953 and 1968 inventories while capitalizing on the new survey. Stratified double sampling with partial replacement (SPR) was the sampling design used to accomplish this task (Bickford, Mayer, Ware 1963). By remeasuring a subsample of the previous surveys, we were able to update the 1953 survey and the 1968 survey area and volume estimates to 1980. Taking these updated inventory estimates and combining them with estimates based only on data from new plots, we developed statistically improved estimates of forest area and timber volume. The next section on processing provides more detail. For the same cost, SPR yields more statistically accurate estimates than other methods.

In developing the estimates for the current survey, a sample was established on aerial photography dating from 1967 to 1978, the most recent photography available. Each aerial plot (first phase) was classified into one of several photo-interpretation (PI) strata. The strata were based on land use and, if forested, timber volume. For each stratum a ground plot subsample (second phase) was chosen randomly from the photo plot sample. In New York, the photo sample consisted of 86,170 plots. A subsample of 4,299 was selected to be observed on the ground.

Approximately 58 percent of the photo plots were photo-interpreted as forested and thus in one of four timber-volume classes. Each timber-volume stratum was sampled with equal intensity, using a selection rule known as proportional allocation. This represented a change from the second survey when optimal allocation was employed. Under optimal allocation higher timber-volume strata were sampled more heavily.

On the ground, land use was verified, and on the forested plots tree data were recorded. The plots consisted of a cluster of 10 prism points systematically arranged to cover approximately 1 acre. At each point, trees 5 inches in diameter and larger were selected for tally by using a prism with a basal-area factor of 37.5 square feet per acre.

The other sets of independent estimates based on updating the 1953 and 1968 surveys required the remeasurement of 698 1/5-acre fixed-radius forested plots originally established during the first survey and 487 10-point forested plots originally established during the second survey. The fixed-radius plots were measured for the third time and were used in the growth and removals calculations.

Processing the Data

Since the 1968 survey, some definitions and procedures have changed as a result of refinements and improvements in forest inventory and data-processing techniques. Three significant changes are: (1) a new procedure for developing county-level estimates, (2) a new forest-land area estimation procedure, and (3) a set of new volume estimation equations.

The first change was the refinement of our data-processing system to develop, in many cases, estimates of forest area and timber volume at the county level. In the past the data were developed at the unit level and prorated to the county level based on the distribution of photo-interpretation points. Development of county-level data helps users interested in more accurate local data but can make trend analysis at the county level uncertain, at least until the next survey.

All counties were not individually estimated. Those counties that did not have at least 60,000 acres of commercial forest land were felt to not have enough plots to stand alone and were grouped with a neighboring county to produce a "supercounty". New York has two supercounties, West Chester/Rockland and Cayuga/Seneca.

The second major change, a new forest-land area estimation procedure, involves an analysis of previously published commercial forest-land estimates. This process has two parts: a reexamination of all remeasured plots for proper land use assignment (forest vs. nonforest) and recalculation of the change in commercial forest land between surveys. The combination of these changes enabled us to estimate more accurately a county's 1968 commercial forest-land base and which counties had significant changes in that base. Recalculation of the 1968 commercial forest-land base produced a statewide estimate that was 133,000 acres larger than the published figure. This represented a change of 0.9 percent from the published total.

The third major change was the development of a set of new timber volume estimation equations for both growing stock and sawtimber (Scott 1979, 1981). Basically, the volumes are now estimated using a nonlinear method; previously linear regression was used. Nonlinear estimation yields data with smaller errors between predicted and actual values and so is deemed more fit. The effect of these revised volume estimators was to lower 1968 published estimates by about 12 percent for softwoods and 6 percent for hardwoods. Volume estimates on small diameter classes were affected more than large diameter-class estimates.

Table 1.—Net volume of growing stock on commercial forest land by species and ownership class (Million cubic feet)

Species	Public	Forest industry	Farmer	Corporate	Misc. private	Total
Balsam fir	7.6	69.5	4.6	24.7	92.1	198.5
Spruces	95.5	121.7	15.0	70.0	221.7	523.9
Red pine	125.1	2.8	37.9	29.7	124.9	320.4
White pine	98.7	34.6	245.6	109.4	689.8	1,178.1
Hemlock	61.5	65.9	374.6	70.3	797.2	1,369.5
Other softwoods	54.0	12.1	50.2	22.0	138.5	276.8
Total softwoods	442.4	306.6	727.9	326.1	2,064.2	3,867.2
Red maple	151.8	250.4	415.7	221.2	1,354.0	2,393.1
Sugar maple	213.0	205.6	710.5	152.3	1,232.2	2,513.6
Yellow birch	20.2	113.6	71.6	62.0	231.8	499.2
Sweet birch	15.0	8.1	57.6	19.2	132.4	232.3
Paper birch	6.2	27.9	15.6	12.9	133.6	196.2
Hickories	13.9	1.2	108.0	14.5	157.4	295.0
American beech	68.2	123.6	299.3	87.1	431.6	1,009.8
White ash	79.0	40.6	247.5	51.7	477.1	895.9
Aspens (populus)	49.1	49.4	182.9	40.2	331.3	652.9
Black cherry	65.0	63.9	138.9	70.4	354.3	692.5
Select white oaks	13.2	2.9	59.5	61.3	128.5	265.4
Chestnut oak	10.6	—	30.1	58.0	174.5	273.2
Northern red oak	56.9	35.0	198.2	101.4	639.6	1,031.1
Other oaks	7.5	1.7	19.2	13.0	131.5	172.9
Basswood	20.7	13.9	158.0	23.0	137.4	353.0
Elms	4.2	—	33.7	10.7	72.2	120.8
Other hardwoods	16.5	2.0	90.6	18.5	178.2	305.8
Total hardwoods	811.0	939.8	2,836.9	1,017.4	6,297.6	11,902.7
All species	1,253.4	1,246.4	3,564.8	1,343.5	8,361.8	15,769.9

Table 2.—Net volume of sawtimber on commercial forest land by species ownership class (Million board feet)

Species	Public	Forest industry	Farmer	Corporate	Misc. private	Total
Balsam fir	5.6	113.8	3.8	51.5	140.9	315.6
Spruces	192.7	310.4	44.9	179.9	463.5	1,191.4
Red pine	381.0	5.4	82.4	73.6	326.0	868.4
White pine	309.4	152.4	739.7	371.7	2,319.3	3,892.5
Hemlock	174.5	228.1	1,068.1	237.9	2,469.0	4,177.6
Other softwoods	141.7	31.0	68.2	68.4	228.6	537.9
Total softwoods	1,204.9	841.1	2,007.1	983.0	5,947.3	10,983.
Red maple	312.6	498.0	796.5	423.9	2,639.5	4,670.
Sugar maple	572.0	475.7	1,956.5	399.5	2,903.0	6,306.
Yellow birch	48.9	357.5	124.6	210.1	566.6	1,307.
Sweet birch	29.6	22.9	104.6	49.3	218.8	425.
Paper birch	15.3	52.6	14.3	7.7	184.7	274.
Hickories	17.5	—	248.8	36.0	246.3	548.
American beech	227.0	340.2	828.5	204.0	1,001.6	2,601.
White ash	187.5	93.0	498.1	109.8	986.7	1,875.
Aspens (populus)	58.9	146.1	296.1	78.8	527.8	1,107.
Black cherry	150.0	195.3	275.0	216.4	879.6	1,716.
Select white oaks	37.2	10.1	207.4	154.1	408.5	817
Chestnut oak	15.9	—	42.4	140.4	298.3	497
Northern red oak	177.5	90.2	584.2	299.3	2,046.0	3,197
Other oaks	12.5	7.5	41.4	43.8	365.3	470
Basswood	75.4	21.9	441.8	76.8	413.7	1,029
Elms	13.9	—	79.6	20.5	86.2	200
Other hardwoods	43.1	5.2	229.2	20.6	425.2	723
Total hardwoods	1,994.8	2,316.2	6,769.0	2,491.0	14,197.8	27,768
All species	3,199.7	3,157.3	8,776.1	3,474.0	20,145.1	38,752

Table 3.—Aboveground green weight[a] of live trees by species and source, New York, 1979 (Thousand green tons)

Species	Growing stock			Rough and rotten trees[c]	Stumps[d]	Saplings[e]	All sources
	Merchantable[b] stem	Tree tops	Total				
Balsam fir	7,092.9	2,897.9	9,990.8	222.5	126.4	6,144.4	16,484.1
Spruces	17,467.9	9,608.9	27,076.8	1,332.5	324.8	7,141.9	35,876.0
Red pine	14,560.9	4,276.9	18,837.8	280.5	256.4	363.0	19,737.7
White pine	51,316.0	10,089.9	61,405.9	8,913.6	1,041.4	6,044.1	77,405.0
Hemlock	57,654.3	21,293.2	78,947.5	7,160.1	1,120.3	9,440.9	96,668.8
Other softwoods	10,913.3	3,915.9	14,829.2	1,949.3	222.4	5,439.1	22,440.0
Total softwoods	159,005.3	52,082.7	211,088.0	19,858.5	3,091.7	34,573.4	268,611.6
Red maple	92,411.1	30,370.0	122,781.1	16,633.5	2,450.6	23,026.5	164,891.7
Sugar maple	110,655.6	33,011.1	143,666.7	14,615.3	2,812.3	19,975.9	181,070.2
Yellow birch	19,376.9	7,993.3	27,370.2	5,177.1	552.7	3,598.6	36,698.6
Sweet birch	9,888.4	3,088.1	12,976.5	937.2	242.9	1,359.5	15,516.1
Paper birch	8,442.5	2,760.4	11,202.9	772.0	206.7	1,340.7	13,522.3
Hickories	14,214.9	4,511.0	18,725.9	893.4	338.7	1,677.0	21,635.0
American beech	43,617.5	16,773.2	60,390.7	14,326.8	1,305.6	13,260.8	89,283.9
White ash	31,364.0	8,213.9	39,577.9	2,160.8	751.5	8,378.0	50,868.2
Aspens (populus)	23,655.9	5,946.5	29,602.4	1,905.9	573.2	5,978.9	38,060.4
Black cherry	23,161.7	12,143.5	35,305.2	5,231.4	638.7	3,481.0	44,656.3
Select white oaks	13,615.0	3,995.4	17,610.4	1,390.3	336.7	686.8	20,024.2
Chestnut oak	14,839.3	4,538.4	19,377.7	857.9	351.8	465.7	21,053.1
Northern red oak	52,893.0	14,926.2	67,819.2	2,168.6	1,233.5	2,241.5	73,462.8
Other oaks	8,809.2	2,628.8	11,438.0	461.2	207.7	710.3	12,817.2
Basswood	13,339.0	3,911.9	17,250.9	1,599.7	335.3	1,345.4	20,531.3
Elms	4,846.8	2,200.1	7,046.9	1,120.2	134.3	4,127.8	12,429.2
Other hardwoods	12,851.4	4,317.4	17,168.8	17,985.3	701.2	43,383.4	79,238.7
Total hardwoods	497,982.2	161,329.2	659,311.4	88,236.6	13,173.4	135,037.8	895,759.2
All species	656,987.5	213,411.9	870,399.4	108,095.1	16,265.1	169,611.2	1,164,370.8

[a]Includes bark and sound cull; excludes rotten cull.
[b]Bole portion of trees 5.0 inches dbh and larger.
[c]Includes bole portion and tree tops.
[d]Of all live trees 5.0 inches dbh and larger, between ground level and a 1-foot stump height.
[e]Includes entire tree aboveground.

Metric Equivalents

1 acre = 4,046.86 square meters or 0.404686 hectares
1,000 acres = 404.686 hectares
1,000,000 acres = 404,686 hectares
1,000 board feet = 3.48 cubic meters[a]
1 cubic foot = 0.028317 cubic meters
1,000 cubic feet = 28.317 cubic meters
1,000,000 cubic feet = 28,317 cubic meters
1 cord (wood, bark, and airspace) = 3.6246 cubic meters
1 cord (solid wood, pulpwood) = 2.4069 cubic meters
1 cord (solid wood, other than pulpwood) = 2.2654 cubic meters
1,000 cords (pulpwood) = 2,406.9 cubic meters
1,000 cords (other products) = 2,265.4 cubic meters
1 ton (short) = 907.1848 kilograms or 0.9071848 metric tons
1,000 tons (short) = 907.1848 metric tons
1 inch = 2.54 centimeters or 0.0254 meters
1 foot = 30.48 centimeters or 0.3048 meters
Breast height = 1.4 meters above ground level
1 mile = 1.609 kilometers
1 square foot = 929.03 square centimeters or 0.0929 square meters
1 square foot per acre basal area = 0.229568 square meters per hectare

[a]While 1,000 board feet is theoretically equivalent to 2.36 cubic meters, this is true only when a board foot is actually a piece of wood with a volume of 1/12 of 1 cubic foot. The International ¼-inch log rule is used by the USDA Forest Service in the East to estimate the product potential in board feet. When a conversion is used, the reliability of the estimate will vary with the size of the log measure. The conversion given here, 3.48 cubic meters, is based on the cubic volume of a log 16 feet long and 15 inches in diameter inside bark (dib) at the small end. This conversion could be used for average comparisons when accuracy of 10 percent is acceptable. Since the board-foot unit is not a true measure of wood volume and since products other than dimension lumber are becoming important, this unit may eventually be phased out and replaced with the cubic-meter unit.

Considine, Thomas J., Jr. **An analysis of New York's timber resources.** Resour. Bull. NE-80. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1984. 70 p.

A comprehensive analysis of the current status and trends of the forest resources of New York. Topics include forest area, timber volume biomass, timber products, timber growth, and removals. Forest management opportunities for increasing the production of major forest resources and enhancing the benefits derived from New York forests are identified.

ODC 905.2(748)

Keywords: Forest survey, trends, projections, area, volume, growth, removals, forest management opportunities

☆ U.S. GOVERNMENT PRINTING OFFICE: 1984—705-029/518

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United States
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Resource
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NE-81

1984

Forest Statistics for Maine 1971 and 1982

Douglas S. Powell
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Forest Statistics for Maine
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Manuscript received for publication May 17, 1984

A statistical report on the third forest survey of Maine (1982) and reprocessed data from the second survey (1971). Results of the surveys are displayed in 169 tables containing estimates of forest and timberland area, numbers of trees, timber volume, tree biomass, timber products output, and components of average annual net change in growing-stock volume for the period between surveys. These estimates were developed by several classifications including forest type, ownership, species, size, and quality. Data are presented at three levels: state, geographic sampling unit, and county.

Foreword

The third inventory of Maine was directed by Joseph E. Barnard, Project Leader of the Forest Inventory and Analysis unit. Charles T. Scott, Douglas S. Powell and Robert T. Brooks were responsible for the design of the inventory and sample selection. John R. Peters supervised the aerial-photo interpretation and data collection by the field crews. He was assisted by David J. Alerich, Thomas B. Hartman, Joseph G. Redden, Karen J. Sykes, Edward H. Uebler, and Richard H. Widmann. The other field workers were: Mark Bilyk, Robert W. Bolich, Sheryl D. Brown, Kenneth Buten, James D. Brennan, Gary M. Capella, Beth A. Coulter, Craig Coutros, Thomas J. Diem, Michael H. Dudek, Dolores M. Eckert, Ellen M. Eshchuk, Sandra A. Fortin, George A. Galasso, Richard R. Gerard, Kenneth W. Getsch, Susan M. Grenier, Michael F. Hart, John R. Houghton, Peter C. Johnson, Thomas R. Kass, Marianne C. Kenney, Wayne R. Kettlewood, Alan E. Kinley, James L. Knapp, IV, Patricia J. Lawler, Anita J. Lazarus, Barbara A. Levesque, Regina C. McCombs, Donald L. McFarland, Gerard E. Milne, Jr., Neil W. Monteith, Kenneth F. Murin, Worthen D. Muzzey, Jr., Lisa J. Myers, Karin E. Naslund, Joseph A. Noel, Janet S. Palentchar, Fred H. Perkuhn, James R. Pfirman, Kip V. Powers, Beth A. Quinn, Richard R. Reimers, Loretta K. Reynolds, Lori B. Reynolds, John P. Rovetto, Remo B. Sadak, Kim M. Santos, Colleen M. Scarrow, Glenn P. Schifferdecker, Peter Slater, Richard L. Slike, Susan L. Slocum, Gail L. Smith, Gary R. Smith, Michael J. Valent, Roger C. Van Wyck, Louis V. Verchot, John H. Vigliotti, Nancy Gail Voorhis, Donald R. Wendt, Thomas G. White, Bruce Wilkins, and Karl E. Wilkins.

The Maine Forest Service, Department of Conservation, provided supplemental funding to intensify the reinventory and assisted significantly with the planning, data collection, and analysis of the inventory. Kenneth Hendren and James Rea provided continuing assistance on behalf of the Maine Forest Service in all of these activities. John Ferwerda and Robert Joslin of the U.S. Department of Agriculture, Soil Conservation Service, provided technical guidance on several aspects of the data collection and assigned a soil series designation to each field plot.

David R. Dickson and Nancy M. Veronesi applied FINSYS (Forest INventory SYStem), a generalized data processing system, to the specific data needs of the Maine inventory, and produced summary tables for the state, geographic sampling units, and counties. Thomas W. Birch and Richard H. Widmann were instrumental in assuring that the area estimates were consistent with those from the two previous inventories. Anne M. Malley assisted in various data processing capacities and prepared and balanced the statistical tables in this report. Margaret Little and Carol McAfee performed a variety of data editing and compilation tasks.

Robert L. Nevel, Richard H. Widmann, and Eric H. Wharton, with the assistance of Peter Lammert, Maine Forest Service, Department of Conservation, collected and compiled the data on timber products output and timber removals.

Carmela M. Hyland was responsible for administrative and secretarial services. Marie Pennestri typed the text for this report.

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Introduction

The USDA Forest Service inventories of the forest resources of the Nation are authorized by the Renewable Resources Planning Act (RPA) of 1974 and the Renewable Resources Research Act of 1978. These inventories are conducted periodically in each state. Two previous inventories were conducted in Maine and the results were reported by Ferguson and Longwood (1960) and Ferguson and Kingsley (1972). This report presents the forest resource data from both the second inventory and the third inventory, which was conducted in 1980-1982. This inventory involved a cooperative effort of the Maine Forest Service, Department of Conservation, the U.S. Soil Conservation Service, and the Northeastern Forest Experiment Station. The Forest Inventory and Analysis project at the Northeastern Forest Experiment Station conducted the inventory on all of the forest land, developed the summaries of resource data, and prepared this report.

The 1980-82 inventory conducted by the Forest Inventory and Analysis project followed a sampling procedure that utilized aerial photography, the partial remeasurement of ground samples from earlier inventories, and new ground sample locations. In Maine this required the remeasurement of 1,222 plots, the classification of 62,801 points on aerial photographs into land-use and cubic-foot volume classes, and the establishment of 2,475 new ground measurement locations as a subsample of the photo points. The data collected were summarized according to the Sampling with Partial Replacement (SPR) design by the FINSYS computer system developed by the Northeastern Forest Experiment Station.

The resurvey of Maine's forest resources involved several companion studies and considerable analysis. Analytical reports discussing specific results of the reinventory and characteristics of the private forest-land owner are being prepared. A publication describing Maine's primary forest products industry will also be available.

The forest area and timber volume statistics shown in this report are a summary of information collected. Other information or additional summaries may be developed. For additional publications or more resource data, contact the Forest Inventory and Analysis Project, USDA Forest Service, 370 Reed Road, Broomall, PA 19008 (phone 215-461-3037) or Director, Maine Forest Service, State House Station #22, Augusta, ME 04333 (phone 207-289-2791).

Highlights

* The forest land area of Maine is 17.6 million acres, or 89 percent of the land area. Maine is the most heavily forested state in the country.

* All counties in Maine are at least 70 percent forested.

* Timberland area is 17.1 million acres, and has increased slightly since 1971.

* Thirty forest types were identified. Forty-six percent of the timberland, 7.8 million acres, is occupied by forest types in the spruce/fir group.

* Sawtimber stands dominate the timberland with 8.5 million acres. This is an increase of more than 20 percent since 1971.

* Ninety-six percent of the timberland is privately owned. Forest industry owns 8.0 million acres, 47 percent of the total. This is the highest proportion of industry ownership in the country.

* There are 94.4 billion live trees of all species more than 1 foot tall in Maine. This averages 5,535 trees per acre of timberland. Trees 5.0 inches and larger in dbh total 3.8 billion or 220 per acre.

* The net green weight of all live trees is 1.5 billion tons, 86.2 tons per acre of timberland.

* Growing-stock volume amounts to 22.8 billion cubic feet or 1,336 cubic feet per acre of timberland. This is about a 7 percent increase over the 1971 inventory.

* Softwood growing-stock volume is 14.8 billion cubic feet, which ranks Maine second only to Georgia in the East in this resource. This volume has remained unchanged since 1971, but balsam fir showed a significant decline of 20 percent.

* Hardwood growing-stock volume is 8.0 billion cubic feet, and increased 18 percent between surveys. Aspen increased a dramatic 77 percent and is now the second most prevalent hardwood species, after red maple.

* Sawtimber volume amounts to 47.7 billion board feet or 2,795 board feet per acre of timberland. This is a 24 percent increase since 1971 and is attributable largely to softwood species.

* Volume suitable for pulpwood is 300 million cords. Thirty-seven percent of this is in hardwood species.

* For all species, net growth exceeded removals by 30 percent for the period between surveys. For softwoods this figure is only 5 percent, and for hardwoods it is 94 percent (nearly double).

Reliability of the Estimates

The data in this report were based on a carefully designed sample of forest conditions throughout the state. However, since we did not measure every tree or every acre in the state, the data are estimates. The effectiveness of the estimating procedure is judged by two important measures: accuracy and precision. Accuracy describes the closeness of a sample estimate to the true value (how much is really there). Precision refers to the variation among repeated sample estimates. We are chiefly interested in the accuracy of the survey, but in most instances we can only measure its precision.

Although accuracy cannot be measured exactly, it can be checked. Great care was taken in setting up the sample, field personnel were carefully trained, and both office and field work were checked. Drafts of the resource report were submitted to outside experts familiar with the resources in Maine. If questions arose, the data were reviewed and reanalyzed to resolve differences. The data also were compared with those provided by other agencies.

Because of the care exercised in the survey process, our estimates of precision afford a reasonable measure of the survey's adequacy. The precision of each estimate is described by its sampling error. Some sampling errors appear in this report; others are available on request.

Here is an example of how to use sampling errors: The estimate of total growing-stock volume for Maine in 1982 is 22,796.1 million cubic feet. It has an associated sampling error of 1.1 percent, or 250.8 million cubic feet. This means that if there are no errors in procedure and we repeated the survey in the same way, the odds are 2 to 1 (66 percent probability) that the resulting estimate of growing-stock volume would be between 22,545.3 and 23,046.9 million cubic feet, or 22,796.1 $\pm$ 250.8 million cubic feet. Similarly there is a 95 percent probability (19 to 1) that the estimate would be 22,796.1 $\pm$ 501.6 million cubic feet.

Estimates are most precise or reliable at the state level; state estimates have the smallest sampling errors, followed by unit estimates and then county estimates. For example, our 1982 estimate of growing-stock volume for the state has an associated sampling error of 1.1 percent; the sampling error for the Casco Bay unit is 2.9 percent, and the sampling error for Sagadahoc County is 9.3 percent. Thus, county-level estimates are often considerably less reliable than unit or state-wide estimates. In general, as the size of an estimate decreases in relation to the total, the sampling error, expressed as a percentage of the estimate, increases.

Changes in forest inventory procedure

Since the 1971 inventory, many changes have been introduced as part of the Forest Inventory and Analysis unit's continuing effort to develop, test, and implement a more efficient inventory of the forest resource. Four significant changes affected the 1982 Maine inventory: (1) a new multiresource plot data collection procedure, (2) a new set of volume estimation procedures, (3) a new forest-land estimation procedure, and (4) a new procedure for developing county-level estimates.

The most significant change in the Maine reinventory is the collection and analysis of multiresource data. The 1982 inventory has been designed with special emphasis on the addition of data related to forest wildlife habitat, forest soils, and forest-tree biomass. A completely new field plot system was developed to allow the collection of these additional kinds of information as well as specific measurements related to forest area and tree volume estimation. A field manual describing the measurement procedures in detail is available upon request. Many new data processing procedures also were developed and implemented as part of the process.

The second change was the development of new timber volume estimation equations for both growing stock and sawtimber (Scott 1979, 1981). Basically, the volumes are now estimated by a nonlinear method; previously linear regression was used. Nonlinear estimation yields data with smaller errors between predicted and actual values and so is deemed more appropriate.

The third change, a new forest-land estimation procedure, involves an analysis of previously published forest land estimates. This process has two parts: a reexamination of all remeasured plots for proper land use assignment (forest vs. nonforest) and recalculation of the change in forest land between surveys. The combination of these changes enabled us to estimate more accurately what a county's timberland base was in 1971 and which counties had significant changes in that base. Recalculation of 1971's timberland base produced a statewide estimate that was 12,000 acres less than the previously published figure. This represented an insignificant change from the published total.

The fourth change was the refinement of our data processing system to develop all estimates of forest area and timber volume at the county level. In the past the data were developed at the unit level and prorated back to the county level, according to the distribution of photo-interpretation points. Development of county-level data helps users interested in more accurate local data.

Comparisons of 1971 and 1982 data

Some of the changes in inventory procedure discussed above make direct comparison of the 1971 data published in Ferguson and Kingsley (1972) with the 1982 data inappropriate. To assist users in the correct analysis of trends, we have recomputed much of the 1971 data using procedures consistent with the 1982 inventory. MANY TABLES OF 1971 DATA ARE PROVIDED IN THIS REPORT. THESE ESTIMATES HAVE BEEN RECOMPUTED AND SHOULD BE USED INSTEAD OF THOSE PUBLISHED PREVIOUSLY FOR MAKING TREND COMPARISONS.

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Table 1.--Land area by land class, Maine, 1982

Land class	Area	
	Thousand acres	Percent
Timberland	17,060.2	86
Noncommercial forest land:		
Productive reserved[a]	272.0	1
Unproductive[b]	273.1	2
Urban	2.1	
Total forest	17,607.4	89
Nonforest land:		
Cropland[c]	591.2	3
Pasture[c]	138.0	1
Other[d]	1,500.2	7
Total nonforest	2,229.4	11
Total land area[e]	19,836.8	100

[a]Includes 29,876 acres in the Acadia National Park, 161,268 acres in the Baxter State Park, and 35,519 acres in the Allagash Waterway.
[b]Includes 11,000 acres of unproductive reserved forest land.
[c]Source: 1978 Census of Agriculture.
[d]Includes swampland, industrial areas, other nonforest land, and 126,259 acres classed as water by Forest Survey standards, but defined by the Bureau of the Census as land.
[e]Source: United States Bureau of the Census, Areas of Maine: 1980. (October 1981).

Table 2.--Area of timberland by forest type, forest-type group, and stand-size class, Maine, 1971[a]

(In thousands of acres)[b]

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Jack pine	.0	.0	11.0	.0	11.0
Red pine	.0	.0	10.5	.0	10.5
White pine	425.8	213.7	368.3	.0	1,007.8
White pine/hemlock	237.0	70.7	38.4	.0	346.1
Hemlock	268.8	176.7	84.8	.0	530.3
White/red pine group	931.6	461.1	513.0	.0	1,905.7
Balsam fir	431.5	911.8	388.5	.0	1,731.8
Red spruce	521.9	449.0	131.6	.0	1,102.5
Red spruce/balsam fir	1,858.8	1,397.1	444.5	.0	3,700.4
White spruce	72.5	36.3	86.9	.0	195.7
Black spruce	38.6	71.4	74.3	.0	184.3
Northern white-cedar	698.3	466.6	190.3	.0	1,355.2
Tamarack	13.0	36.0	59.4	.0	108.4
Spruce/fir group	3,634.6	3,368.2	1,375.5	.0	8,378.3
Pitch pine	.0	.0	13.7	.0	13.7
Loblolly/shortleaf group	.0	.0	13.7	.0	13.7
White pine/no. red oak/white ash	.0	14.4	12.0	.0	26.4
Oak/pine group	.0	14.4	12.0	.0	26.4
White oak/red oak/hickory	.0	.0	12.0	.0	12.0
Northern red oak	60.1	113.8	21.4	.0	195.3
Red maple/central hardwoods	26.3	.0	23.7	.0	50.0
Mixed central hardwoods	.0	.0	13.7	.0	13.7
Oak/hickory group	86.4	113.8	70.8	.0	271.0
Black ash/Amer. elm/red maple	48.0	82.6	213.9	.0	344.5
Elm/ash/red maple group	48.0	82.6	213.9	.0	344.5
Sugar maple/beech/y. birch	1,722.3	903.5	478.4	.0	3,104.2
Black cherry	.0	12.8	.0	.0	12.8
Red maple/northern hardwoods	282.4	481.0	423.1	.0	1,186.5
Mixed northern hardwoods	214.2	248.8	119.9	.0	582.9
Northern hardwoods group	2,218.9	1,646.1	1,021.4	.0	4,886.4
Aspen	54.5	297.8	223.2	.0	575.5
Paper birch	60.4	109.9	100.3	.0	270.6
Gray birch	.0	.0	123.7	.0	123.7
Aspen/birch group	114.9	407.7	447.2	.0	969.8
Indeterminate	.0	.0	74.2	12.2	86.4
Total, all groups	7,034.4	6,093.9	3,741.7	12.2	16,882.2

[a]The data on all 1971 tables have been reprocessed so as to be comparable to 1982 data because of various changes in data processing and calculation procedures between surveys.

[b]In this and other tables zeroes indicate no or negligible data. Dashes indicate no data.

Table 3.--Area of timberland by forest type, forest-type group, and stand-size class, Maine, 1982

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Red pine	24.1	9.6	9.2	.0	42.9
White pine	751.8	218.2	61.1	.0	1,031.1
White pine/hemlock	314.0	183.3	8.3	.0	505.6
Hemlock	447.0	145.7	22.4	.0	615.1
White/red pine group	1,536.9	556.8	101.0	.0	2,194.7
Balsam fir	372.3	535.3	185.3	8.4	1,101.3
Red spruce	632.6	478.0	45.7	9.7	1,166.0
Red spruce/balsam fir	1,907.0	1,086.0	328.1	.0	3,321.1
White spruce	87.0	62.9	.0	5.0	154.9
Black spruce	8.5	205.0	64.7	.0	278.2
Northern white-cedar	1,030.1	457.8	145.3	.0	1,633.2
Tamarack	45.7	47.0	23.1	.0	115.8
Spruce/fir group	4,083.2	2,872.0	792.2	23.1	7,770.5
Pitch pine	4.1	.0	4.2	.0	8.3
Loblolly/shortleaf group	4.1	.0	4.2	.0	8.3
White pine/no. red oak/wh. ash	15.5	20.7	.0	.0	36.2
Oak/pine group	15.5	20.7	.0	.0	36.2
Post/black/bear oak	.0	4.2	.0	.0	4.2
White oak	4.2	.0	.0	.0	4.2
Northern red oak	66.1	122.8	20.1	.0	209.0
Hawthorn/reverting field	3.9	.0	.0	.0	3.9
Red maple/central hardwoods	12.5	12.7	18.9	.0	44.1
Mixed central hardwoods	18.9	12.5	9.7	.0	41.1
Oak/hickory group	105.6	152.2	48.7	.0	306.5
Black ash/Amer. elm/red maple	31.6	130.2	4.5	.0	166.3
Willow	10.4	.0	41.9	.0	52.3
American elm/green ash	4.0	11.6	4.0	.0	19.6
Elm/ash/red maple group	46.0	141.8	50.4	.0	238.2
Sugar maple/beech/y. birch	1,956.5	976.2	201.5	.0	3,134.2
Black cherry	.0	9.6	9.2	.0	18.8
Red maple/northern hardwoods	396.3	642.1	169.8	.0	1,208.2
Pin cherry/reverting field	.0	10.6	106.3	9.0	125.9
Mixed northern hardwoods	204.7	259.7	49.4	.0	513.8
Northern hardwoods group	2,557.5	1,898.2	536.2	9.0	5,000.9
Aspen	143.5	648.2	229.2	.0	1,020.9
Paper birch	20.8	275.1	74.2	.0	370.1
Gray birch	4.2	30.8	78.9	.0	113.9
Aspen/birch group	168.5	954.1	382.3	.0	1,504.9
Total, all groups	8,517.3	6,595.8	1,915.0	32.1	17,060.2

Table 4.--Area of timberland by forest-type group and ownership class, Maine, 1982

(In thousands of acres)

Forest-type group	Ownership class				All classes
	National Forest	Other public	Forest industry	Other private	
White/red pine	4.0	109.7	406.2	1,674.8	2,194.7
Spruce/fir	10.6	319.6	4,491.2	2,949.1	7,770.5
Loblolly/shortleaf	-	-	-	8.3	8.3
Oak/pine	-	4.5	-	31.7	36.2
Oak/hickory	4.1	-	8.8	293.6	306.5
Elm/ash/red maple	5.4	9.8	97.2	125.8	238.2
Northern hardwoods	21.5	120.7	2,565.7	2,293.0	5,000.9
Aspen/birch	-	80.2	447.8	976.9	1,504.9
Total, all groups	45.6	644.5	8,016.9	8,353.2	17,060.2

Table 5.--Area of timberland by stand-size and ownership classes, Maine, 1982

(In thousands of acres)

Stand-size class	Ownership class				All classes
	National Forest	Other public	Forest industry	Other private	
Sawtimber	25.5	357.3	4,448.4	3,686.1	8,517.3
Poletimber	15.9	233.9	2,728.5	3,617.5	6,595.8
Sapling and seedling	4.2	53.3	831.8	1,025.7	1,915.0
Nonstocked	-	-	8.2	23.9	32.1
All classes	45.6	644.5	8,016.9	8,353.2	17,060.2

Table 6.--Area of timberland by board foot stand-volume and ownership classes, Maine, 1982

(In thousands of acres)

Stand-volume class (board feet per acre)	Ownership class				All classes
	National Forest	Other public	Forest industry	Other private	
0 - 1,999	24.3	273.5	3,395.4	4,530.5	8,223.7
2,000 - 3,999	10.7	170.8	2,303.2	2,077.7	4,562.4
4,000 - 5,999	10.6	123.3	1,434.7	991.4	2,560.0
6,000 - 7,999	-	42.1	599.1	416.7	1,057.9
8,000 - 9,999	-	8.3	116.1	209.3	333.7
10,000+	-	26.5	168.4	127.6	322.5
All classes	45.6	644.5	8,016.9	8,353.2	17,060.2

Table 7.--Area of timberland by potential site productivity and ownership classes, Maine, 1982

(In thousands of acres)

Potential site productivity class	Ownership class				All classes
	National Forest	Other public	Forest industry	Other private	
Poor	34.9	269.0	3,228.7	3,629.7	7,162.3
Fair	10.7	308.9	4,231.0	3,808.8	8,359.4
Good	-	54.6	499.7	866.9	1,421.2
Very good	-	12.0	57.5	47.8	117.3
All classes	45.6	644.5	8,016.9	8,353.2	17,060.2

Table 8.--Area of timberland by forest-type group and cubic foot stand-volume class, Maine, 1982

(In thousands of acres)

Forest-type group	Stand-volume class (cubic feet per acre)						All classes
	0-499	500-999	1000-1499	1500-1999	2000-2499	2500+	
White/red pine	132.1	383.2	496.1	469.5	348.5	365.3	2,194.7
Spruce/fir	862.7	1,222.1	1,481.2	1,470.8	1,466.6	1,267.1	7,770.5
Loblolly/shortleaf	4.1	4.2	-	-	-	-	8.3
Oak/pine	9.0	-	18.9	4.3	-	4.0	36.2
Oak/hickory	72.7	57.0	61.8	79.6	27.3	8.1	306.5
Elm/ash/red maple	91.7	65.6	58.0	18.8	4.1	-	238.2
Northern hardwoods	656.6	1,121.6	1,217.8	1,259.5	572.4	173.0	5,000.9
Aspen/birch	446.2	263.6	320.7	315.2	109.6	49.6	1,504.9
Total, all groups	2,275.1	3,117.3	3,654.5	3,617.7	2,528.5	1,867.1	17,060.2

Table 9.--Area of timberland by forest-type group and board foot stand-volume class, Maine, 1982

(In thousands of acres)

Forest-type group	Stand-volume class (board feet per acre)[a]						All classes
	0-1999	2000-3999	4000-5999	6000-7999	8000-9999	10000+	
White/red pine	699.3	677.4	368.7	206.1	136.3	106.9	2,194.7
Spruce/fir	3,348.3	2,189.7	1,366.1	537.2	136.5	192.7	7,770.5
Loblolly/shortleaf	4.1	4.2	-	-	-	-	8.3
Oak/pine	21.6	14.6	-	-	-	-	36.2
Oak/hickory	207.7	43.8	36.4	14.5	4.1	-	306.5
Elm/ash/red maple	216.1	12.5	9.6	-	-	-	238.2
Northern hardwoods	2,537.4	1,422.4	701.4	268.4	48.4	22.9	5,000.9
Aspen/birch	1,189.2	197.8	77.8	31.7	8.4	-	1,504.9
Total, all groups	8,223.7	4,562.4	2,560.0	1,057.9	333.7	322.5	17,060.2

Table 10.--Area of timberland by forest-type group and green ton stand-volume class, Maine, 1982

(In thousands of acres)

Forest-type group	Stand-volume class (green tons per acre)									All classes
	0-24	25-49	50-74	75-99	100-124	125-149	150-174	175-199	200+	
White/red pine	39.3	233.5	437.9	389.5	477.0	299.7	174.5	100.5	42.8	2,194.7
Spruce/fir	571.5	999.6	1,552.2	1,596.5	1,657.0	943.5	332.8	113.6	3.8	7,770.5
Loblolly/shortleaf	4.1	-	4.2	-	-	-	-	-	-	8.3
Oak/pine	4.2	4.8	14.6	4.2	4.3	4.1	-	-	-	36.2
Oak/hickory	22.6	54.8	68.3	89.3	59.5	7.9	-	4.1	-	306.5
Elm/ash/red maple	50.3	74.2	44.6	36.6	22.1	10.4	-	-	-	238.2
Northern hardwoods	324.8	566.7	952.6	1,394.1	1,132.7	513.5	106.0	10.5	-	5,000.9
Aspen/birch	235.3	227.5	226.9	358.9	281.9	153.3	21.1	-	-	1,504.9
Total, all groups	1,252.1	2,161.1	3,301.3	3,869.1	3,634.5	1,932.4	634.4	228.7	46.6	17,060.2

Table 11.--Area of timberland by forest-type group and stocking class of all live trees, Maine, 1982

(In thousands of acres)

Forest-type group	Stocking class					All classes
	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked	
White/red pine	-	72.5	231.7	592.5	1,298.0	2,194.7
Spruce/fir	23.1	262.2	648.0	1,526.3	5,310.9	7,770.5
Loblolly/shortleaf	-	-	4.1	4.2	-	8.3
Oak/pine	-	4.8	4.2	14.8	12.4	36.2
Oak/hickory	-	24.0	49.6	72.9	160.0	306.5
Elm/ash/red maple	-	9.6	80.9	50.3	97.3	238.2
Northern hardwoods	9.0	94.2	476.3	1,527.5	2,893.9	5,000.9
Aspen/birch	-	120.3	165.7	401.2	815.7	1,504.9
Total, all groups	32.1	587.6	1,660.5	4,191.8	10,588.2	17,060.2

Table 12.--Area of timberland by forest-type group and stocking class of growing-stock trees, Maine, 1971

(In thousands of acres)

Forest-type group	Stocking class					All classes
	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked	
White/red pine	35.6	144.5	399.9	847.9	477.8	1,905.7
Spruce/fir	-	248.6	1,529.8	3,410.2	3,189.7	8,378.3
Loblolly/shortleaf	-	13.7	-	-	-	13.7
Oak/pine	-	-	14.4	12.0	-	26.4
Oak/hickory	-	12.8	73.7	111.9	72.6	271.0
Elm/ash/red maple	-	58.9	109.6	100.0	76.0	344.5
Northern hardwoods	-	338.3	2,017.9	2,107.3	422.9	4,886.4
Aspen/birch	20.9	99.7	302.1	414.1	133.0	969.8
Indeterminate	59.4	-	27.0	-	-	86.4
Total, all groups	115.9	916.5	4,474.4	7,003.4	4,372.0	16,882.2

Table 13.--Area of timberland by forest-type group and stocking class of growing-stock trees, Maine, 1982

(In thousands of acres)

Forest-type group	Stocking class					All classes
	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked	
White/red pine	4.2	166.4	374.3	663.4	986.4	2,194.7
Spruce/fir	53.4	428.3	988.1	1,640.9	4,659.8	7,770.5
Loblolly/shortleaf	-	4.1	-	4.2	-	8.3
Oak/pine	-	9.0	10.6	4.2	12.4	36.2
Oak/hickory	-	27.8	74.0	100.6	104.1	306.5
Elm/ash/red maple	-	54.1	70.7	59.9	53.5	238.2
Northern hardwoods	21.6	242.8	1,273.5	1,714.1	1,748.9	5,000.9
Aspen/birch	-	158.4	218.7	444.5	683.3	1,504.9
Total, all groups	79.2	1,090.9	3,009.9	4,631.8	8,248.4	17,060.2

Table 14.--Area of timberland by forest-type group and basal area class, Maine, 1982

(In thousands of acres)

Forest-type group	Basal area class (square feet per acre)						All classes
	0-49	50-99	100-149	150-199	200-249	250-299	
White/red pine	160.5	601.9	874.3	443.7	105.8	8.5	2,194.7
Spruce/fir	709.8	1,866.3	2,725.3	2,055.8	388.4	24.9	7,770.5
Loblolly/shortleaf	4.1	-	4.2	-	-	-	8.3
Oak/pine	9.0	14.6	12.6	-	-	-	36.2
Oak/hickory	52.1	94.3	156.0	4.1	-	-	306.5
Elm/ash/red maple	66.8	116.1	26.8	28.5	-	-	238.2
Northern hardwoods	443.3	1,663.2	2,369.7	489.0	35.7	-	5,000.9
Aspen/birch	281.0	439.7	511.8	259.8	12.6	-	1,504.9
Total, all groups	1,726.6	4,796.1	6,680.7	3,280.9	542.5	33.4	17,060.2

Table 15.--Area of timberland by stocking class of all live trees and basal area class, Maine, 1982

(In thousands of acres)

Stocking class	Basal area class (square feet per acre)						All classes
	0-49	50-99	100-149	150-199	200-249	250-299	
0 -15 (Nonstocked)	32.1	.0	.0	.0	.0	.0	32.
16 - 19	34.9	.0	.0	.0	.0	.0	34.
20 - 29	61.6	.0	.0	.0	.0	.0	61.
30 - 39	119.0	3.7	.0	.0	.0	.0	122.
40 - 49	108.2	14.3	.0	.0	.0	.0	122.
50 - 59	224.4	10.9	10.6	.0	.0	.0	245.
Total poorly stocked	548.1	28.9	10.6	.0	.0	.0	587.
60 - 69	179.2	101.5	.0	.0	.0	.0	280.
70 - 79	153.1	166.5	.0	.0	.0	.0	319.
80 - 89	163.4	395.7	.0	.0	.0	.0	559.
90 - 99	50.8	381.5	57.6	11.2	.0	.0	501.
Total moderately stocked	546.5	1,045.2	57.6	11.2	.0	.0	1,660.
100 - 109	79.4	854.5	133.9	8.1	.0	.0	1,075.
109 - 119	78.4	838.4	416.6	16.3	.0	.0	1,349.
120 - 129	95.8	745.6	847.9	72.7	4.2	.0	1,766.
Total fully stocked	253.6	2,438.5	1,398.4	97.1	4.2	.0	4,191.
130 - 139	85.0	634.5	1,639.6	261.4	12.7	.0	2,633.
140 - 149	161.4	345.7	2,378.4	1,069.4	75.7	.0	4,030.
150 - 160	99.9	303.3	1,196.1	1,841.8	449.9	33.4	3,924.
Total overstocked	346.3	1,283.5	5,214.1	3,172.6	538.3	33.4	10,588.
Total all classes	1,726.6	4,796.1	6,680.7	3,280.9	542.5	33.4	17,060.

Table 16.--Number of live trees on timberland by diameter and tree classes and softwoods and hardwoods, Maine, 1982

(In thousands of trees)

Diameter class	Growing Stock		Cull		Total
	Softwoods	Hardwoods	Softwoods	Hardwoods	
Seedlings	31,182,722	35,175,354	-	14,277,031	80,635,107
1.0- 2.9	3,491,169	2,963,593	-	707,324	7,162,086
3.0- 4.9	1,673,390	1,066,547	-	138,926	2,878,863
Total seedlings and saplings	36,347,281	39,205,494	-	15,123,281	90,676,056
5.0- 6.9	915,549	467,068	179,348	191,375	1,753,340
7.0- 8.9	566,621	296,631	69,395	82,301	1,014,948
9.0-10.9	-	157,341	-	42,566	199,907
Total poletimber	1,482,170	921,040	248,743	316,242	2,968,195
9.0-10.9	284,949	-	29,003	-	313,952
11.0-12.9	133,770	80,127	15,718	21,213	250,828
13.0-14.9	60,290	38,225	6,662	12,648	117,825
Total small sawtimber	479,009	118,352	51,383	33,861	682,605
15.0-16.9	26,675	17,487	3,433	6,842	54,437
17.0-18.9	10,545	8,757	1,863	4,420	25,585
19.0-20.9	5,306	4,408	857	2,627	13,198
21.0-28.9	4,521	4,219	1,595	2,751	13,086
29.0 and larger	557	257	203	219	1,236
Total larger sawtimber	47,604	35,128	7,951	16,859	107,542
All classes	38,356,064	40,280,014	308,077	15,490,243	94,434,398

Table 17.—Number of trees (5.0+ inches dbh) on timberland by species and tree class, Maine, 1978.

(In thousands of trees)

Species	Tree classes								Total
	Preferred	Acceptable	All growing stock	Rough cull	Rotten cull	All live	Salvable dead	Nonsalvable dead	
Balsam fir	214,397	689,113	903,510	71,415	48,417	1,023,342	106,246	105,348	1,234,936
Tamarack	5,466	9,665	15,132	2,568	1,092	18,792	1,080	1,450	21,322
White spruce	33,323	46,633	81,956	3,367	1,755	87,078	3,172	1,431	91,682
Black spruce	38,065	46,293	84,358	3,393	930	88,681	3,499	1,916	94,096
Red spruce	229,473	359,846	589,319	27,527	14,441	631,287	25,291	18,112	674,690
Red pine	2,502	2,960	5,462	480	32	5,974	69	75	6,118
White pine	28,006	95,653	123,719	18,680	3,575	145,974	1,980	12,072	159,996
Northern white-cedar	63,921	190,021	253,820	23,156	18,381	295,357	12,712	23,762	331,831
Hemlock	28,887	120,390	149,477	23,299	5,609	178,385	2,106	2,962	183,453
Other softwoods	26	1,078	1,104	785	29	1,918	132	340	2,390
Total softwoods	644,165	1,364,618	2,008,783	202,890	105,181	2,316,860	167,308	170,619	2,654,787
Sugar maple	26,083	96,328	122,411	18,394	12,160	152,965	2,360	4,391	160,016
Soft maples	31,197	252,914	284,111	56,257	37,318	377,686	5,134	14,628	397,648
Yellow birch	14,254	82,803	97,057	18,929	10,998	126,984	3,869	16,372	147,225
Paper birch	38,792	151,816	190,608	15,463	9,087	215,158	9,461	14,027	238,646
Gray birch	1,149	16,255	17,404	13,886	3,002	34,292	3,502	5,016	42,810
Beech	6,285	82,300	88,585	32,833	36,457	157,875	4,181	14,763	176,819
White ash	9,636	20,591	30,227	2,278	2,244	34,749	773	1,178	36,700
Black ash	2,791	14,464	17,255	7,268	4,192	28,715	4,569	4,061	37,335
Aspen	50,283	112,813	163,096	13,151	12,800	189,047	8,707	14,071	211,825
White oaks	213	2,909	3,122	1,156	283	4,561	29	14	4,604
Red oaks	10,053	38,381	48,434	3,430	1,037	52,901	401	638	53,940
Basswood	559	1,680	2,239	249	265	2,753	34	41	2,828
Elm	545	2,762	3,307	1,207	1,131	5,645	1,003	4,267	10,915
Other commercial hardwoods	666	5,998	6,664	3,370	448	10,482	757	942	12,181
Noncommercial hardwoods	-	-	-	37,359[a]	9,809	47,168	3,695	8,517	59,380
Total hardwoods	192,506	882,014	1,074,520	225,530[a]	141,431	1,441,481	48,465	102,926	1,592,872
Total, all species	836,671	2,246,632	3,083,303	428,420[a]	246,618	3,758,341	215,773	273,545	4,247,659

[a]Includes 20,132,000 trees that, except for being noncommercial species, would qualify as growing-stock trees.

Table 18.--Number of growing-stock trees on timberland by species and diameter class, Maine, 1982

(In thousands of trees)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	382,165	208,474	82,451	23,792	5,263	1,279	117	29	0	0	703,570
Tamarack	6,918	2,922	2,481	1,557	618	287	265	59	25	0	15,132
White spruce	40,418	23,059	11,221	4,706	1,776	567	112	65	42	0	81,966
Black spruce	53,817	19,993	7,617	1,800	947	126	29	29	0	0	84,358
Red spruce	248,528	172,130	91,846	43,896	20,667	7,579	2,906	1,122	629	16	589,319
Red pine	1,039	1,013	1,287	1,201	539	297	67	19	0	0	5,462
White pine	36,256	27,108	19,911	14,662	9,889	6,705	4,008	2,104	2,552	524	123,719
Northern white-cedar	94,343	72,817	42,366	24,964	12,028	5,085	1,571	986	460	0	254,620
Hemlock	51,837	38,725	25,580	17,039	8,402	4,711	1,460	893	813	17	149,477
Other softwoods	228	380	189	153	161	39	10	0	0	0	1,160
Total softwoods	915,549	566,621	284,949	133,770	60,290	26,675	10,545	5,306	4,521	557	2,008,783
Sugar maple	42,843	31,022	18,455	11,916	7,633	3,786	2,938	1,830	1,909	79	122,411
Red maple	134,827	78,083	39,191	18,295	7,775	3,031	1,715	754	372	68	284,111
Yellow birch	30,869	25,262	17,645	10,267	5,704	3,750	1,619	777	1,136	28	97,057
Paper birch	95,541	56,344	24,999	9,307	2,825	1,125	355	52	52	8	190,608
Gray birch	13,567	2,879	620	217	71	41	9	0	0	0	17,404
Beech	40,957	22,770	10,740	7,562	3,948	1,865	484	110	149	0	88,585
White ash	11,611	9,107	5,435	2,396	891	381	201	99	106	0	30,227
Black ash	8,025	4,982	2,108	1,232	580	158	49	92	29	0	17,255
Aspen	61,938	48,335	29,788	13,946	5,959	2,006	638	344	113	29	163,096
White oaks	1,683	956	259	57	75	64	0	22	6	0	3,122
Red oaks	19,619	13,613	6,820	4,092	2,191	1,070	489	271	257	12	48,434
Basswood	640	639	245	345	146	83	103	38	0	0	2,239
Elm	1,326	866	293	154	319	69	143	19	85	33	3,307
Other hardwoods	3,622	1,773	743	341	108	58	14	0	5	0	6,664
Total hardwoods	467,068	296,631	157,341	80,127	38,225	17,487	8,757	4,408	4,219	257	1,074,520
Total, all species	1,382,617	863,252	442,290	213,897	98,515	44,162	19,302	9,714	8,740	814	3,083,303

Table 19.--Net green weight of all live trees on timberland by species and diameter class, Maine 1982

(In thousands of tons)

Species	Diameter class (inches at breast height)										All classes
	1.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21+	
Balsam fir	57,817.6	62,142.0	60,755.0	38,496.7	16,826.0	5,631.1	1,892.3	231.9	75.9	42.6	243,911.1
Tamarack	1,378.1	1,118.1	887.9	1,205.1	967.5	615.3	338.2	392.4	117.9	61.0	7,081.5
White spruce	4,843.0	6,120.8	6,773.1	5,693.9	3,500.1	1,976.3	870.9	463.5	166.8	133.3	30,541.7
Black spruce	5,881.4	8,125.5	5,936.6	3,642.5	1,373.3	979.7	197.5	50.7	69.2	.0	26,256.4
Red spruce	24,957.3	40,380.2	51,697.5	45,806.5	33,576.2	22,260.4	11,128.8	5,895.4	2,699.3	2,339.1	240,740.7
Red pine	130.4	215.0	441.9	860.2	1,207.1	709.1	629.2	159.7	59.0	22.4	4,434.0
White pine	5,288.7	6,685.9	8,971.9	11,554.6	12,854.9	12,078.8	11,425.6	9,302.2	6,613.6	19,946.5	104,722.7
No. white-cedar	11,247.3	11,849.6	14,987.8	13,039.6	10,798.7	6,920.1	3,861.2	1,556.4	1,055.5	923.5	76,239.7
Hemlock	6,386.9	9,376.8	12,123.0	12,979.6	12,793.3	9,150.9	6,952.6	2,933.3	2,366.2	3,453.8	78,516.4
Other softwoods	28.5	31.1	97.4	83.2	56.3	79.9	30.4	6.9	.0	.0	413.7
Total softwoods	117,959.2	146,045.0	162,672.1	133,361.9	93,953.4	60,401.6	37,326.7	20,992.4	13,223.4	26,922.2	812,857.9
Sugar maple	9,601.6	8,987.8	11,982.7	11,546.5	11,171.1	10,128.9	7,465.0	7,000.6	6,401.5	10,474.9	94,760.6
Soft maples	24,842.7	26,386.1	28,594.1	23,479.5	17,199.7	10,881.2	5,988.7	4,406.4	2,714.1	2,775.1	147,267.6
Yellow birch	6,476.4	6,548.2	9,837.5	11,548.5	10,524.8	8,006.3	7,137.6	4,851.0	2,812.9	7,238.0	74,981.2
Paper birch	12,391.3	17,540.4	21,319.5	16,556.8	9,594.5	4,654.9	2,668.7	1,139.6	468.6	483.8	86,818.1
Gray birch	7,707.7	4,107.3	1,244.3	325.9	221.1	121.1	84.1	16.7	.0	.0	13,828.2
Beech	15,207.2	11,892.4	12,659.7	12,270.0	10,744.1	8,364.7	5,568.3	2,676.3	716.5	1,060.6	81,159.8
White ash	2,235.6	2,049.3	2,994.0	2,978.7	2,007.3	1,108.5	696.1	408.6	364.3	479.2	15,321.6
Black ash	2,236.4	2,196.8	2,136.7	1,471.5	1,198.5	768.5	344.8	159.7	249.0	77.3	10,839.2
Aspen	7,346.4	10,860.3	16,283.5	16,889.1	11,850.0	7,739.1	3,241.6	1,632.8	1,119.6	703.3	77,665.7
White oaks	568.1	395.5	314.9	136.0	47.2	88.2	116.7	77.7	93.8	183.4	2,021.5
Red oaks	2,789.1	3,304.5	4,378.3	3,518.4	3,395.7	2,498.1	1,739.5	1,049.3	846.7	1,368.3	24,887.9
Basswood	160.1	86.3	134.6	69.4	129.0	75.6	60.6	92.9	31.2	2.5	842.2
Elm	506.3	403.9	435.1	247.1	186.0	414.1	97.1	275.0	41.8	661.2	3,267.6
Other comm. hrdwds.	1,312.2	939.2	737.3	418.8	318.0	158.5	133.8	23.9	21.6	82.6	4,145.9
Noncomm. hardwoods	12,805.0	3,851.2	1,728.5	403.9	156.8	224.1	94.7	22.8	30.4	46.3	19,363.7
Total hardwoods	106,186.1	99,549.2	114,780.7	101,860.1	78,743.8	55,231.8	35,437.3	23,833.3	15,912.0	25,636.5	657,170.8
Total, all species	224,145.3	245,594.2	277,452.8	235,222.0	172,697.2	115,633.4	72,764.0	44,825.7	29,135.4	52,558.7	1,470,028.7

Table 20.--Net volume and green weight of all trees on timberland by class of material and softwoods and hardwoods, Maine, 1982

Class of material	Volume[a]			Weight[b]		
	Softwoods	Hardwoods	All species	Softwoods	Hardwoods	All species
	Million cubic feet			Thousand tons		
Sawtimber trees:						
Sawlog portion	7,436.1	2,717.0	10,153.1	232,910.7	110,684.7	343,595.4
Upper stem	1,065.6	693.2	1,758.8	32,706.2	27,827.6	60,533.8
Total	8,501.7	3,410.3	11,912.0	265,616.9	138,512.3	404,129.2
Poletimber trees	6,256.6	4,627.5	10,884.1	181,544.4	174,834.2	356,378.6
All growing stock	14,758.3	8,037.8	22,796.1	447,161.3	313,346.5	760,507.8
Rough cull trees[c]	857.1	901.8	1,758.9	32,680.4	45,855.7	78,536.1
Rotten cull trees[c]	347.0	564.3	911.3	12,953.8	32,640.2	45,594.0
Salvable dead trees[d]	442.6	144.7	587.3	22,957.2	10,383.9	33,341.1
Saplings[e]	-	-	-	117,959.2	106,186.1	224,145.3
Stumps[f]	-	-	-	11,228.5	9,353.4	20,581.9
Tops - growing stock	-	-	-	173,543.1	120,135.3	293,678.4
Tops - rough and rotten	-	-	-	18,037.1	29,960.1	47,997.2
All non-growing stock	1,646.7	1,610.8	3,257.5	389,359.3	354,514.7	743,874.0
All classes	16,405.0	9,648.6	26,053.6	836,520.6	667,861.2	1,504,381.8

[a]Excludes bark.
[b]Includes bark and sound cull; excludes rotten cull.
[c]Bole portion of trees 5.0 inches dbh and larger.
[d]Volume of bole portion of trees 5.0 inches dbh and larger, and weight of entire tree aboveground.
[e]Includes entire tree aboveground.
[f]Of all salvable dead and all live trees 5.0 inches dbh and larger.

Table 21.--Net volume of growing-stock trees on timberland by forest-type group and stand-size class, Maine, 1982

(In millions of cubic feet)

Forest type group	Stand-size class			All classes
	Sawtimber	Poletimber	Sapling and seedling	
White/red pine	2,731.7	616.8	31.0	3,379.5
Spruce/fir	7,903.4	3,628.0	216.6	11,748.0
Loblolly/shortleaf	2.9	-	-	2.9
Oak/pine	14.7	28.5	-	43.2
Oak/hickory	154.0	162.6	7.6	324.2
Elm/ash/red maple	29.4	102.3	10.3	142.0
Northern hardwoods	3,640.6	1,912.7	112.9	5,666.2
Aspen/birch	296.3	1,145.0	48.8	1,490.1
Total, all groups	14,773.0	7,595.9	427.2	22,796.1

Table 22.--Net volume of growing-stock trees on timberland by forest-type group and basal area class, Maine, 1982

(In millions of cubic feet)

Forest-type group	Basal area class (square feet per acre)						All classes
	0-49	50-99	100-149	150-199	200-249	250-299	
White/red pine	57.6	536.6	1,426.3	1,006.0	333.2	19.8	3,379.5
Spruce/fir	185.2	1,564.1	4,361.0	4,525.6	1,064.0	48.1	11,748.0
Loblolly/shortleaf	-	-	2.9	-	-	-	2.9
Oak/pine	2.8	16.9	23.5	-	-	-	43.2
Oak/hickory	9.8	83.5	220.7	10.2	-	-	324.2
Elm/ash/red maple	11.6	72.3	29.9	28.2	-	-	142.0
Northern hardwoods	81.4	1,295.5	3,333.9	865.7	89.7	-	5,666.2
Aspen/birch	41.3	315.6	661.0	459.0	13.2	-	1,490.1
Total, all groups	389.7	3,884.5	10,059.1	6,894.8	1,500.1	67.9	22,796.1

Table 23.--Net volume of growing-stock trees on timberland by species and forest-type group, Maine, 1982

(In millions of cubic feet)

Species	Forest-type group								All groups
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Balsam fir	176.0	3,051.7	-	-	9.5	16.6	659.1	118.9	4,031.8
Tamarack	4.9	94.6	-	-	-	1.6	9.4	4.6	115.1
White spruce	24.3	450.0	-	-	.7	-	45.6	35.0	555.6
Black spruce	1.9	440.8	-	-	-	1.7	5.4	1.7	451.5
Red spruce	235.3	3,837.1	-	.5	14.0	6.8	604.7	74.4	4,772.8
Red pine	55.6	8.0	-	-	1.3	-	1.5	2.0	68.4
White pine	1,262.7	288.4	-	11.8	25.4	-	116.8	30.5	1,735.6
Northern white-cedar	46.7	1,557.4	-	-	.5	10.0	62.9	23.7	1,701.2
Hemlock	742.7	281.8	-	-	10.0	-	260.2	20.0	1,314.7
Other softwoods	6.5	.8	2.9	-	.6	-	.6	.2	11.6
Total softwoods	2,556.6	10,010.6	2.9	12.3	62.0	36.7	1,766.2	311.0	14,758.3
Sugar maple	43.9	143.4	-	-	6.1	1.9	1,100.3	13.4	1,309.0
Red maple	239.4	433.2	-	.9	47.5	38.8	933.6	101.6	1,795.0
Yellow birch	36.5	249.5	-	-	3.9	2.6	608.5	19.8	920.8
Paper birch	129.0	442.7	-	1.0	17.7	1.0	270.2	269.2	1,130.8
Gray birch	21.3	12.2	-	.4	.4	1.0	16.8	10.6	62.7
Beech	35.3	19.1	-	1.1	11.9	-	550.1	12.2	629.7
White ash	30.1	22.8	-	-	8.3	8.7	157.3	16.9	244.1
Black ash	4.8	66.0	-	-	-	21.6	14.0	2.5	108.9
Aspen	114.3	334.9	-	.9	8.5	9.2	151.8	707.5	1,327.1
White oaks	8.7	-	-	.2	5.5	-	1.2	1.3	16.9
Red oaks	141.9	6.3	-	26.4	150.9	1.2	57.4	13.6	397.7
Basswood	1.7	1.5	-	-	.2	-	21.7	-	25.1
Elm	1.3	4.8	-	-	-	13.2	7.2	5.5	32.0
Other hardwoods	14.7	1.0	-	-	1.3	6.1	9.9	5.0	38.0
Total hardwoods	822.9	1,737.4	.0	30.9	262.2	105.3	3,900.0	1,179.1	8,037.8
Total, all species	3,379.5	11,748.0	2.9	43.2	324.2	142.0	5,666.2	1,490.1	22,796.1

Table 24.--Net volume of growing-stock trees on timberland by species and stand-size class, Maine, 1971

(In millions of cubic feet)

Species	Stand-size class			All classes
	Sawtimber	Poletimber	Sapling and seedling	
Balsam fir	2,702.3	2,077.2	270.7	5,050.2
Tamarack	40.4	52.8	17.5	110.7
White spruce	413.1	199.4	39.9	652.4
Black spruce	61.3	94.0	33.3	188.6
Red spruce	2,897.3	1,580.2	207.1	4,684.6
Red pine	18.0	8.0	6.3	32.3
White pine	954.6	341.9	179.1	1,475.6
Northern white-cedar	730.5	422.8	60.4	1,213.7
Hemlock	788.5	269.3	88.8	1,146.6
Other softwoods	-	1.6	-	1.6
Total all softwoods	8,606.0	5,047.2	903.1	14,556.3
Sugar maple	898.5	317.6	62.5	1,278.6
Red maple	680.6	743.2	181.4	1,605.2
Yellow birch	519.7	260.6	60.2	840.5
Paper birch	284.8	492.2	78.6	855.6
Gray birch	-	3.6	-	3.6
Beech	405.3	211.7	55.6	672.6
White ash	91.8	78.7	21.1	191.6
Black ash	65.2	29.8	11.9	106.9
Aspen	181.4	448.3	118.2	747.9
White oaks	2.7	.9	3.0	6.6
Red oaks	100.0	150.5	50.6	301.1
Basswood	36.5	16.5	15.7	68.7
Elm	56.1	27.5	21.9	105.5
Other hardwoods	16.0	5.5	4.7	26.2
Total all hardwoods	3,338.6	2,786.6	685.4	6,810.6
Total all species	11,944.6	7,833.8	1,588.5	21,366.9

Table 25.--Net volume of growing-stock trees on timberland by species and stand-size class, Maine, 1982

(In millions of cubic feet)

Species	Stand-size class			All classes
	Sawtimber	Poletimber	Sapling and seedling	
Balsam fir	2,709.0	1,245.4	77.4	4,031.8
Tamarack	58.3	47.9	8.9	115.1
White spruce	365.0	178.1	12.5	555.6
Black spruce	146.4	289.0	16.1	451.5
Red spruce	3,370.4	1,340.4	62.0	4,772.8
Red pine	45.9	17.7	4.8	68.4
White pine	1,355.0	364.2	16.4	1,735.6
Northern white-cedar	1,301.5	371.1	28.6	1,701.2
Hemlock	1,004.0	293.3	17.4	1,314.7
Other softwoods	9.2	2.1	.3	11.6
Total all softwoods	10,364.7	4,149.2	244.4	14,758.3
Sugar maple	998.7	290.2	20.1	1,309.0
Red maple	966.4	787.3	41.3	1,795.0
Yellow birch	660.6	239.9	20.3	920.8
Paper birch	459.3	640.5	31.0	1,130.8
Gray birch	24.0	36.3	2.4	62.7
Beech	430.6	191.7	7.4	629.7
White ash	118.3	116.8	9.0	244.1
Black ash	65.8	42.0	1.1	108.9
Aspen	431.5	862.1	33.5	1,327.1
White oaks	9.4	7.4	.1	16.9
Red oaks	197.5	188.8	11.4	397.7
Basswood	11.7	10.5	2.9	25.1
Elm	19.2	10.9	1.9	32.0
Other hardwoods	15.3	22.3	.4	38.0
Total all hardwoods	4,408.3	3,446.7	182.8	8,037.8
Total all species	14,773.0	7,595.9	427.2	22,796.1

Table 26.--Net volume of growing-stock trees on timberland by species and cubic foot stand-volume class, Maine, 1982

(In millions of cubic feet)

Species	Stand-volume class (cubic feet per acre)						All classes
	0-499	500-999	1000-1499	1500-1999	2000-2499	2500+	
Balsam fir	63.0	367.5	663.2	803.0	1,024.1	1,111.0	4,031.8
Tamarack	14.6	19.1	24.0	28.5	19.4	9.5	115.1
White spruce	10.6	58.4	103.5	138.1	102.1	142.9	555.6
Black spruce	20.5	43.9	122.9	94.2	83.8	86.2	451.5
Red spruce	38.3	282.5	554.9	1,078.1	1,166.8	1,652.2	4,772.8
Red pine	1.3	11.3	16.5	19.4	9.4	10.5	68.4
White pine	25.1	115.2	285.6	348.2	371.4	590.1	1,735.6
Northern white cedar	37.5	111.4	242.3	340.5	448.6	520.9	1,701.2
Hemlock	14.3	131.1	211.5	337.1	321.1	299.6	1,314.7
Other softwoods	.8	3.2	2.2	1.3	1.6	2.5	11.6
Total all softwoods	226.0	1,143.6	2,226.6	3,188.4	3,548.3	4,425.4	14,758.3
Sugar maple	14.7	117.8	262.6	444.5	353.5	115.9	1,309.0
Red maple	47.9	224.8	414.9	563.7	336.5	207.2	1,795.0
Yellow birch	18.5	114.7	189.4	283.3	205.7	109.2	920.8
Paper birch	32.3	76.2	242.0	383.5	221.6	175.2	1,130.8
Gray birch	4.2	11.2	14.4	19.7	11.3	1.9	62.7
Beech	14.5	85.7	131.3	227.2	123.6	47.4	629.7
White ash	12.8	23.4	64.7	69.8	35.8	37.6	244.1
Black ash	1.3	17.3	20.3	23.5	33.4	13.1	108.9
Aspen	46.9	162.6	337.3	391.6	232.2	156.5	1,327.1
White oaks	.7	4.3	3.7	3.6	1.3	3.3	16.9
Red oaks	19.1	37.9	91.6	120.1	63.0	66.0	397.7
Basswood	.0	6.1	8.1	1.9	6.1	2.9	25.1
Elm	2.6	6.0	17.6	3.8	1.7	.3	32.(
Other hardwoods	1.0	8.0	12.8	8.5	4.5	3.2	38.(
Total all hardwoods	216.5	896.0	1,810.7	2,544.7	1,630.2	939.7	8,037.8
Total all species	442.5	2,039.6	4,037.3	5,733.1	5,178.5	5,365.1	22,796.1

Distribution of Volume by Cubic Foot Stand-volume Classes

Maine 1982

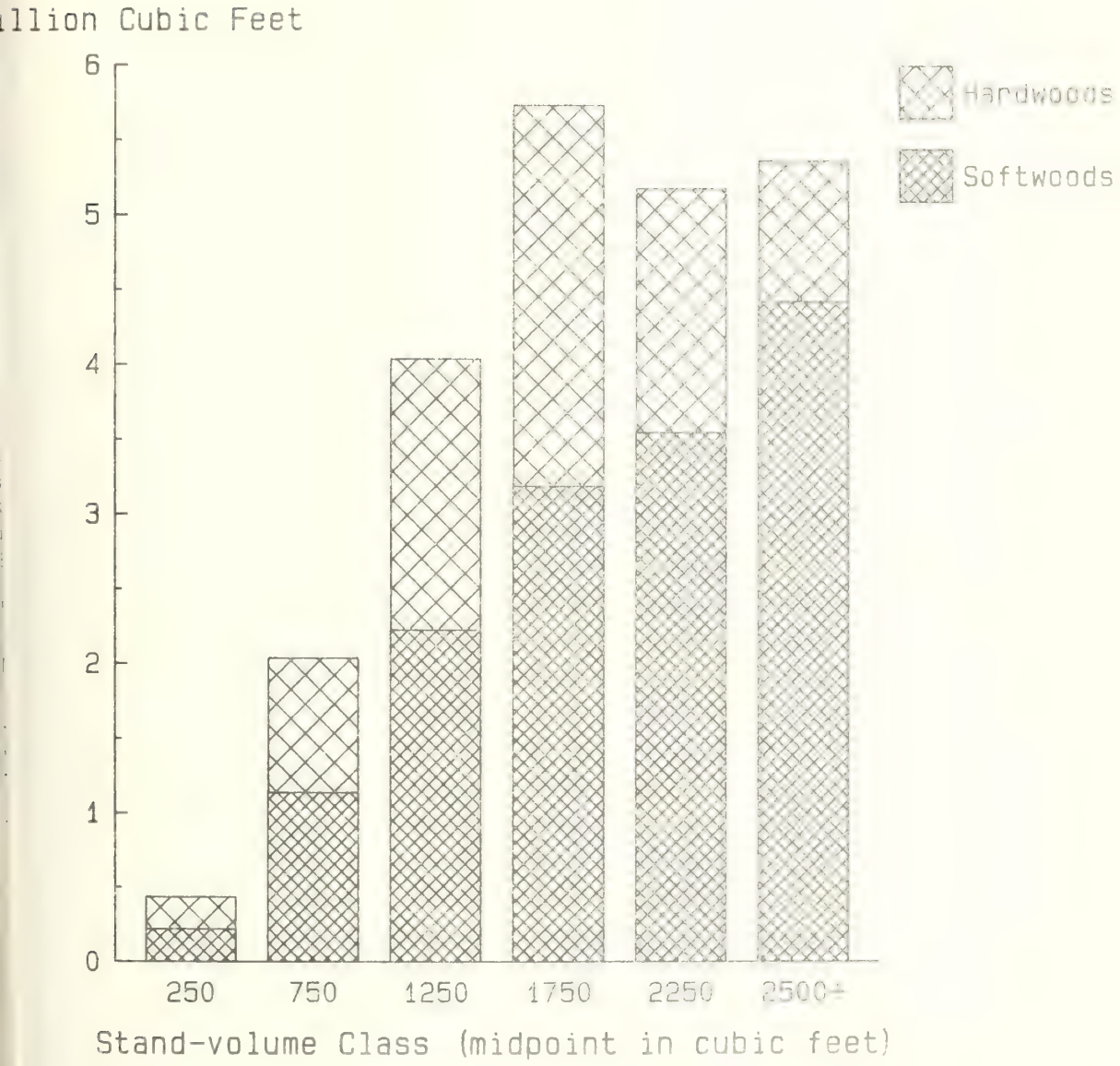


Table 27.--Net volume of growing-stock trees on timberland by species and diameter class, Maine, 1971

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	1,821.5	1,780.6	944.0	365.1	104.0	25.3	7.9	1.8	.0	.0	5,050.2
Tamarack	20.4	31.0	21.5	18.2	15.3	3.5	.0	.8	.0	.0	110.7
White spruce	132.2	163.5	140.1	111.8	41.7	32.4	15.8	7.0	7.9	.0	652.4
Black spruce	72.9	82.3	21.1	4.5	4.3	2.5	.0	1.0	.0	.0	188.6
Red spruce	1,062.5	1,177.5	970.1	651.5	406.7	215.5	124.7	47.8	28.3	.0	4,684.6
Red pine	4.4	3.2	5.6	7.0	4.0	5.8	.0	2.3	.0	.0	32.3
White pine	99.0	191.0	186.2	222.9	202.3	163.1	103.8	86.0	173.5	47.8	1,475.6
Northern white-cedar	235.6	330.7	269.2	186.0	89.6	52.6	30.2	5.7	12.5	1.6	1,213.7
Hemlock	160.8	206.5	208.5	195.7	145.6	111.1	56.3	24.2	36.9	1.0	1,146.6
Other softwoods	.0	.0	1.6	.0	.0	.0	.0	.0	.0	.0	1.6
Total softwoods	3,609.3	3,966.3	2,767.9	1,762.7	1,013.5	611.8	338.7	176.6	259.1	50.4	14,556.3
Sugar maple	126.8	148.1	172.2	164.3	166.2	145.2	121.3	89.4	139.2	5.9	1,278.6
Red maple	292.7	402.6	319.3	222.9	162.6	111.3	46.5	23.6	20.0	3.7	1,605.2
Yellow birch	99.6	116.3	138.9	156.3	111.1	73.0	58.4	36.2	47.5	3.2	840.5
Paper birch	214.1	214.4	207.8	98.8	64.7	23.9	19.3	6.3	5.0	1.3	855.6
Gray birch	.0	2.7	.9	.0	.0	.0	.0	.0	.0	.0	3.6
Beech	99.2	148.8	144.9	111.2	85.0	52.4	17.2	8.3	5.6	.0	672.6
White ash	27.0	45.2	41.6	28.6	14.2	19.3	6.1	3.4	4.8	1.4	191.6
Black ash	16.2	17.8	16.1	22.8	18.1	13.8	2.1	.0	.0	.0	106.9
Aspen	140.6	209.2	175.2	120.4	59.3	23.8	17.5	1.9	.0	.0	747.9
White oaks	1.8	.0	.0	1.9	.0	1.1	.9	.0	.0	.9	6.6
Red oaks	35.7	52.1	52.6	51.1	42.0	19.9	16.9	15.3	14.3	1.2	301.1
Basswood	11.8	10.4	8.2	15.6	6.9	6.5	.0	6.6	2.7	.0	68.7
Elm	7.6	15.6	19.2	17.7	9.2	7.2	8.2	8.6	8.5	3.7	105.5
Other hardwoods	9.6	7.6	2.0	4.0	.7	.8	.0	.0	1.5	.0	26.2
Total hardwoods	1,082.7	1,390.8	1,298.9	1,015.6	740.0	498.2	314.4	199.6	249.1	21.3	6,810.6
Total, all species	4,692.0	5,357.1	4,066.8	2,778.3	1,753.5	1,110.0	653.1	376.2	508.2	71.7	21,366.9

Table 28.--Net volume of growing-stock trees on timberland by species and diameter class, Maine, 1982

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	1,122.7	1,367.1	943.5	416.3	134.5	40.7	5.4	1.6	.0	.0	4,031.8
Tamarack	17.4	15.7	24.9	22.4	13.0	8.1	9.7	2.6	1.3	.0	115.1
White spruce	117.5	149.9	130.7	83.0	43.8	19.3	4.6	3.6	3.2	.0	555.6
Black spruce	169.1	131.6	87.1	32.9	23.6	4.7	1.2	1.3	.0	.0	451.5
Red spruce	791.7	1,147.0	1,058.6	775.8	515.5	256.2	126.7	56.6	42.6	2.1	4,772.8
Red pine	3.5	6.4	13.4	19.3	12.8	9.2	2.8	1.0	.0	.0	68.4
White pine	102.9	168.5	219.4	247.1	231.8	214.6	164.8	107.9	191.6	87.0	1,735.6
Northern white-cedar	227.4	359.3	355.5	314.4	214.1	122.1	48.0	36.3	24.1	.0	1,701.2
Hemlock	139.6	216.5	249.5	249.8	178.2	132.4	52.8	42.2	51.7	2.0	1,314.7
Other softwoods	.6	2.2	1.9	2.3	3.2	1.1	.3	.0	.0	.0	11.6
Total softwoods	2,692.4	3,564.2	3,084.5	2,163.3	1,370.5	808.4	416.3	253.1	314.5	91.1	14,758.3
Sugar maple	115.5	186.5	195.5	189.8	166.7	111.1	113.6	87.3	133.2	9.8	1,309.0
Red maple	327.9	439.5	378.6	279.3	163.4	82.0	60.4	34.7	21.2	8.0	1,795.0
Yellow birch	81.6	141.7	168.8	153.9	112.3	100.2	54.3	33.9	71.4	2.7	920.8
Paper birch	266.7	346.0	258.4	147.3	59.7	33.7	12.7	2.5	2.9	.9	1,130.8
Gray birch	32.8	17.4	5.8	3.6	1.7	1.1	.3	.0	.0	.0	62.7
Beech	99.1	131.5	110.9	119.7	83.6	52.2	19.3	4.7	8.7	.0	629.7
White ash	33.1	57.5	58.0	39.2	21.0	12.0	9.4	5.6	8.3	.0	244.1
Black ash	20.3	27.3	20.4	17.6	11.7	4.0	1.8	4.3	1.5	.0	108.9
Aspen	188.5	322.2	331.1	231.9	139.5	60.2	24.4	18.6	7.2	3.5	1,327.1
White oaks	4.0	5.2	2.5	.9	1.3	2.0	.0	.7	.3	.0	16.9
Red oaks	51.9	84.4	69.5	65.3	48.8	30.1	17.8	12.5	15.7	1.7	397.7
Basswood	1.8	4.1	2.9	5.7	3.3	2.6	3.1	1.6	.0	.0	25.1
Elm	3.4	3.9	3.0	2.3	5.0	1.8	3.6	.7	5.0	3.3	32.0
Other hardwoods	10.0	10.3	8.0	5.2	1.9	1.8	.4	.0	.4	.0	38.0
Total hardwoods	1,236.6	1,777.5	1,613.4	1,261.7	819.9	494.8	321.1	207.1	275.8	29.9	8,037.8
Total, all species	3,929.0	5,341.7	4,697.9	3,425.0	2,190.4	1,303.2	737.4	460.2	590.3	121.0	22,796.1

Table 29.--Net volume of sawtimber trees on timberland by species and diameter class, Maine, 1971

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	3,200.6	1,439.9	427.6	101.9	36.7	8.6	.0	.0	5,215.3
Tamarack	64.1	63.5	57.6	15.0	.0	3.1	.0	.0	203.3
White spruce	475.4	436.1	173.2	146.9	68.6	32.4	38.0	.0	1,370.6
Black spruce	68.7	16.7	15.5	9.4	.0	4.5	.0	.0	114.8
Red spruce	3,245.9	2,504.5	1,661.5	901.0	522.3	196.0	110.6	.0	9,141.8
Red pine	17.2	29.3	16.4	27.6	.0	11.2	.0	.0	101.7
White pine	605.1	890.2	888.2	746.8	489.8	416.9	879.6	240.1	5,156.7
Northern white-cedar	652.0	527.0	261.4	166.4	90.1	20.6	36.3	6.5	1,760.3
Hemlock	614.4	650.5	534.7	404.9	207.1	88.3	129.8	4.6	2,634.3
Other softwoods	4.6	.0	.0	.0	.0	.0	.0	.0	4.6
Total softwoods	8,948.0	6,557.7	4,036.1	2,519.9	1,414.6	781.6	1,194.3	251.2	25,703.4
Sugar maple	.0	654.1	712.4	640.4	547.2	419.2	683.3	30.5	3,687.1
Red maple	.0	812.9	638.2	471.9	194.3	101.4	87.1	15.1	2,320.9
Yellow birch	.0	627.8	474.3	319.8	258.1	164.0	219.2	9.7	2,072.9
Paper birch	.0	404.6	278.7	107.0	83.4	24.6	21.7	4.6	924.6
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	.0	452.8	373.3	241.2	76.7	36.0	23.9	.0	1,203.9
White ash	.0	109.3	59.4	84.7	28.0	16.5	20.6	6.5	325.0
Black ash	.0	89.8	76.7	56.4	9.5	.0	.0	.0	232.4
Aspen	.0	476.7	246.1	108.8	80.1	7.2	.0	.0	918.9
White oaks	.0	5.9	.0	4.5	3.4	.0	.0	4.2	18.0
Red oaks	.0	190.7	164.7	85.6	77.2	64.9	69.0	4.0	656.1
Basswood	.0	63.4	30.6	28.1	.0	33.9	15.7	.0	171.7
Elm	.0	72.3	37.3	31.9	38.9	41.0	41.0	14.4	276.8
Other hardwoods	.0	14.4	3.5	4.8	.0	.0	9.0	.0	31.7
Total hardwoods	.0	3,974.7	3,095.2	2,185.1	1,396.8	908.7	1,190.5	89.0	12,840.0
Total, all species	8,948.0	10,532.4	7,131.3	4,705.0	2,811.4	1,690.3	2,384.8	340.2	38,543.4

[a]International 1/4-inch rule.

Table 30.--Net volume of sawtimber trees on timberland by species and diameter class, Maine, 1982

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	3,312.3	1,727.8	603.4	184.6	26.3	7.4	.0	.0	5,861.8
Tamarack	77.9	81.9	51.0	32.4	38.9	9.9	5.3	.0	297.3
White spruce	452.1	347.4	188.6	93.7	18.4	16.8	17.4	.0	1,134.4
Black spruce	294.5	138.5	109.2	23.4	6.5	6.8	.0	.0	578.9
Red spruce	3,703.7	3,253.0	2,365.1	1,213.1	629.7	284.7	211.6	13.3	11,674.2
Red pine	43.5	76.8	54.8	41.2	14.2	5.5	.0	.0	236.0
White pine	738.6	996.2	1,020.6	999.4	784.6	530.4	990.4	460.0	6,520.2
Northern white-cedar	913.2	968.2	734.5	433.7	178.4	134.2	92.1	.0	3,454.3
Hemlock	794.5	938.0	722.9	564.7	236.5	182.2	238.6	10.6	3,688.0
Other softwoods	5.6	8.4	12.9	4.3	1.3	.0	.0	.0	32.5
Total softwoods	10,335.9	8,536.2	5,863.0	3,590.5	1,934.8	1,177.9	1,555.4	483.9	33,477.6
Sugar maple	.0	708.4	695.2	480.0	503.4	414.3	620.0	38.3	3,459.6
Red maple	.0	1,034.8	651.3	346.6	264.5	154.0	97.8	41.9	2,590.9
Yellow birch	.0	594.3	470.8	418.3	229.4	144.1	315.4	13.5	2,185.8
Paper birch	.0	574.6	247.7	142.3	55.5	11.0	14.6	4.1	1,049.8
Gray birch	.0	13.4	7.1	4.3	1.4	.0	.0	.0	26.2
Beech	.0	479.3	361.8	233.8	86.0	20.9	33.2	.0	1,215.0
White ash	.0	155.6	88.3	53.4	43.7	26.1	42.2	.0	409.3
Black ash	.0	70.9	47.3	17.7	8.9	18.9	5.8	.0	169.5
Aspen	.0	939.6	604.2	263.7	112.1	89.2	35.8	15.8	2,060.4
White oaks	.0	3.6	5.4	9.5	.0	3.4	1.3	.0	23.2
Red oaks	.0	243.7	198.6	130.4	78.4	58.2	75.9	10.3	795.5
Basswood	.0	22.3	14.5	13.0	13.9	7.4	.0	.0	71.1
Elm	.0	7.5	22.0	6.3	16.8	4.0	27.9	18.0	102.5
Other hardwoods	.0	19.7	8.8	8.2	2.0	.0	2.3	.0	41.0
Total hardwoods	.0	4,867.7	3,423.0	2,127.5	1,416.0	951.5	1,272.2	141.9	14,199.8
Total, all species	10,335.9	13,403.9	9,286.0	5,718.0	3,350.8	2,129.4	2,827.6	625.8	47,677.4

[a]International 1/4-inch rule.

Table 31.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Maine, 1971

(In millions of board feet)[a]

Species	All size classes					>15" Diameter at breast height				
	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades
Balsam fir[c]	.0	.0	.0	.0	5,215.3	.0	.0	.0	.0	.0
Tamarack[c]	.0	.0	.0	.0	203.3	.0	.0	.0	.0	.0
White spruce[c]	.0	.0	.0	.0	1,370.6	.0	.0	.0	.0	.0
Black spruce[c]	.0	.0	.0	.0	114.8	.0	.0	.0	.0	.0
Red spruce[c]	.0	.0	.0	.0	9,141.8	.0	.0	.0	.0	.0
Red pine	9.5	10.0	82.2	.0	101.7	4.7	5.5	28.8	.0	39.0
White pine	197.5	493.9	2,612.2	1,853.1	5,156.7	170.1	304.3	1,253.5	1,045.4	2,773.3
Northern white-cedar[c]	.0	.0	.0	.0	1,760.3	.0	.0	.0	.0	.0
Hemlock[c]	.0	.0	.0	.0	2,634.3	.0	.0	.0	.0	.0
Other softwoods[c]	.0	.0	.0	.0	4.6	.0	.0	.0	.0	.0
Total softwoods	207.0	503.9	2,694.4	1,853.1	25,703.4	174.8	309.8	1,282.3	1,045.4	2,812.3
Sugar maple	635.9	939.5	1,702.8	408.9	3,687.1	582.2	641.1	870.6	225.6	2,319.5
Red maple	144.1	462.2	1,424.2	290.4	2,320.9	119.4	239.5	427.3	83.6	869.8
Yellow birch	286.6	542.7	1,079.4	164.2	2,072.9	216.9	304.5	387.5	61.9	970.8
Paper birch	63.3	210.5	545.1	105.7	924.6	44.0	77.0	99.7	20.3	241.0
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	32.1	90.9	823.3	257.6	1,203.9	18.1	35.7	249.2	75.0	378.0
White ash	66.2	89.8	127.1	41.9	325.0	53.4	36.2	48.7	18.2	156.5
Black ash	43.7	63.3	94.0	31.4	232.4	25.0	11.1	24.0	6.0	66.1
Aspen	44.9	149.4	574.9	149.7	918.9	25.6	47.8	99.7	22.7	195.8
White oaks	.0	2.2	12.5	3.3	18.0	.0	2.2	7.7	2.1	12.0
Red oaks	123.4	151.9	321.0	59.8	656.1	97.6	80.4	96.1	26.4	300.5
Basswood	45.3	44.7	72.5	9.2	171.7	32.4	19.5	22.0	4.0	77.9
Elm	35.8	89.4	126.6	25.0	276.8	24.8	66.9	63.3	12.3	167.3
Other hardwoods	3.9	2.4	20.9	4.5	31.7	3.9	2.3	5.8	1.8	13.8
Total hardwoods	1,525.2	2,838.9	6,924.3	1,551.6	12,840.0	1,243.3	1,564.2	2,401.6	559.9	5,769.0
Percent of hardwood in each grade	12	22	54	12	100	22	27	42	9	100

[a]International 1/4-inch rule.
[b]Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c]These species are not divided into standard-lumber grades.

Table 32.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Maine, 1982

(In millions of board feet)[a]

Species	All size classes					>15" Diameter at breast height				
	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades
Balsam fir[c]	.0	.0	.0	.0	5,861.8	.0	.0	.0	.0	.0
Tamarack[c]	.0	.0	.0	.0	297.3	.0	.0	.0	.0	.0
White spruce[c]	.0	.0	.0	.0	1,134.4	.0	.0	.0	.0	.0
Black spruce[c]	.0	.0	.0	.0	578.9	.0	.0	.0	.0	.0
Red spruce[c]	.0	.0	.0	.0	11,674.2	.0	.0	.0	.0	.0
Red pine	92.1	22.3	121.6	.0	236.0	27.1	3.6	30.1	.0	60.8
White pine	756.7	1,369.5	2,896.7	1,497.2	6,520.2	657.0	690.7	1,549.6	867.2	3,764.5
Northern white-cedar[c]	.0	.0	.0	.0	3,454.3	.0	.0	.0	.0	.0
Hemlock[c]	.0	.0	.0	.0	3,688.0	.0	.0	.0	.0	.0
Other softwoods[c]	.0	.0	.0	.0	32.5	.0	.0	.0	.0	.0
Total softwoods	848.8	1,391.8	3,018.3	1,497.2	33,477.6	684.1	694.3	1,579.7	867.2	3,825.3
Sugar maple	537.6	792.7	1,526.9	602.4	3,459.6	462.3	513.1	748.0	332.5	2,055.9
Red maple	101.8	471.1	1,457.4	560.6	2,590.9	92.6	201.7	430.8	179.6	904.7
Yellow birch	198.5	597.5	1,094.6	295.2	2,185.8	170.3	327.3	476.2	146.9	1,120.7
Paper birch	69.4	311.5	545.5	123.4	1,049.8	46.4	68.8	91.3	21.3	227.8
Gray birch	2.6	4.0	14.0	5.6	26.2	.0	.9	4.0	.8	5.7
Beech	26.6	148.6	721.8	318.0	1,215.0	14.8	60.1	212.0	87.0	373.9
White ash	72.0	100.7	166.2	70.4	409.3	60.8	42.9	43.0	18.8	165.5
Black ash	6.8	49.3	80.4	33.0	169.5	1.8	15.0	27.6	6.7	51.1
Aspen	207.7	583.0	970.4	299.3	2,060.4	154.4	145.8	164.8	51.8	516.8
White oaks	5.1	4.6	7.0	6.5	23.2	5.1	2.8	2.0	4.2	14.1
Red oaks	136.1	251.5	308.0	99.9	795.5	116.6	90.6	101.7	44.4	353.3
Basswood	7.3	24.8	32.8	6.2	71.1	4.4	11.7	13.9	4.2	34.2
Elm	26.4	29.2	33.8	13.1	102.5	26.4	21.1	18.6	7.0	73.1
Other hardwoods	3.5	6.2	23.7	7.6	41.0	3.5	3.3	2.9	2.9	12.6
Total hardwoods	1,401.4	3,374.7	6,982.5	2,441.2	14,199.8	1,159.4	1,505.0	2,336.8	908.2	5,909.4
Percent of hardwood in each grade	10	24	49	17	100	20	25	40	15	100

[a]International 1/4-inch rule.
[b]Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c]These species are not divided into standard-lumber grades.

Table 33.--Net volume suitable for pulpwood on timberland by species and tree class, Maine, 1982

(In thousands of cords)

Species	Growing stock		Rough		Total
	Poletimber	Sawtimber	Poletimber	Sawtimber	
Balsam fir	29,452	18,311	2,738	307	50,808
Tamarack	400	980	66	60	1,506
White spruce	3,173	3,422	96	181	6,872
Black spruce	3,556	1,788	140	25	5,509
Red spruce	23,116	33,940	971	611	58,638
Red pine	116	694	17	54	881
White pine	3,187	17,641	428	1,734	22,990
Northern white cedar	7,082	13,471	1,241	1,606	23,400
Hemlock	4,269	11,565	658	643	17,135
Other softwoods	33	103	9	19	164
Total all softwoods	74,384	101,915	6,364	5,240	187,903
Sugar maple	6,066	10,045	754	899	17,764
Soft maples	14,051	8,182	2,195	1,257	25,685
Yellow birch	4,802	6,538	746	854	12,940
Paper birch	10,522	3,196	685	168	14,571
Gray birch	680	83	422	20	1,205
Beech	4,197	3,634	1,446	861	10,138
White ash	1,774	1,151	98	55	3,078
Black ash	838	520	301	62	1,721
Aspen	10,147	6,004	723	157	17,031
White oaks	142	65	27	19	253
Red oaks	2,437	2,336	104	102	4,979
Basswood	107	204	10	5	326
Elm	126	297	40	20	483
Other comm. hardwoods	348	125	125	68	666
Noncomm. hardwoods	644	31	440	40	1,155
Total all hardwoods	56,881	42,411	8,116	4,587	111,995
Total all species	131,265	144,326	14,480	9,827	299,898

Table 34.--Average annual net change of growing-stock volume on timberland by species and component, Maine, 1971 - 1981[a]

(In thousands of cubic feet)

Species	Ingrowth	Accretion	Gross growth	Mortality	Cull increment	Net growth	Removals[b]	Net change
Balsam fir	43,493	80,242	123,735	-100,796	-22,850	89	-87,159	-87,070
Spruce	31,123	126,142	157,265	-28,266	-12,097	116,902	-95,160	21,742
Pine	15,031	65,823	80,854	-9,131	-7,747	63,976	-38,664	25,312
Northern white-cedar	10,308	53,242	63,550	-7,412	-8,456	47,682	-6,025	41,657
Hemlock	6,816	35,996	42,812	-3,471	-2,880	36,461	-22,086	14,375
Other softwoods	1,110	3,690	4,800	-2,280	-508	2,012	-793	1,219
Total softwoods	107,881	365,135	473,016	-151,356	-54,538	267,122	-249,887	17,235
Sugar maple	7,782	28,993	36,775	-3,594	-7,961	25,220	-22,639	2,581
Yellow birch	6,544	24,811	31,355	-5,682	-6,590	19,083	-12,226	6,857
Paper birch	17,274	29,936	47,210	-4,252	-3,927	39,031	-15,520	23,511
Beech	7,735	20,966	28,701	-6,175	-16,805	5,721	-9,389	-3,668
White ash	6,915	5,401	12,316	-1,655	-1,494	9,167	-4,697	4,470
Aspen	24,557	43,846	68,403	-6,417	-4,661	57,325	-7,812	49,513
Oak	4,664	10,236	14,900	-427	-1,025	13,448	-4,332	9,116
Other hardwoods	23,999	50,462	74,461	-18,544	-20,447	35,470	-23,048	12,422
Total hardwoods	99,470	214,651	314,121	-46,746	-62,910	204,465	-99,663	104,802
All species	207,351	579,786	787,137	-198,102	-117,448	471,587	-349,550	122,037

[a]This table does not equal the sum of tables 142 through 150 because calculation procedures were slightly different.
[b]Removals are based on data from the Maine Timber Cut Reports issued annually by the Maine Forest Service. Removals for fuelwood and removals from the timberland base as a result of change in land use are only partially accounted for.

Table 35.--Output of timber products by product, softwoods and hardwoods, and source of material, Maine, 1981

Product and species group	Standard units	Output from roundwood		Output from manufacturing residues		Total output	
		Number of units	Thousand cubic feet	Number of units	Thousand cubic feet	Number of units	Thousand cubic feet
Sawlogs							
Softwood	Mbf[a]	730,896	117,007	-	-	730,896	117,007
Hardwood	Mbf	62,881	9,581	-	-	62,881	9,581
Total	Mbf	793,777	126,588	-	-	793,777	126,588
Veneer logs and bolts							
Softwood	Mbf	8,116	1,241	-	-	8,116	1,241
Hardwood	Mbf	30,327	4,636	-	-	30,327	4,636
Total	Mbf	38,443	5,877	-	-	38,443	5,877
Pulpwood							
Softwood	Std cords[b]	2,198,571	186,879	754,800	25,180	2,953,371	212,059
Hardwood	Std cords	1,219,015	103,616	82,600	3,584	1,301,615	107,200
Total	Std cords	3,417,586	290,495	837,400	28,764	4,254,986	319,259
Turnery bolts							
Softwood	Mbf	212	18	-	-	212	18
Hardwood	Mbf	80,960	6,882	-	-	80,960	6,882
Total	Mbf	81,172	6,900	-	-	81,172	6,900
Piling							
Softwood	M linear ft	-	-	-	-	-	-
Hardwood	M linear ft	3	2	-	-	3	2
Total	M linear ft	3	2	-	-	3	2
Poles							
Softwood	M pieces	1	6	-	-	1	6
Hardwood	M pieces	-	-	-	-	-	-
Total	M pieces	1	6	-	-	1	6
Posts							
Softwood	M pieces	475	651	-	-	475	651
Hardwood	M pieces	4	5	-	-	4	5
Total	M pieces	479	656	-	-	479	656

Table 35.--continued

Product and species group	Standard units	Output from roundwood		Output from manufacturing residues		Total output	
		Number of units	Thousand cubic feet	Number of units	Thousand cubic feet	Number of units	Thousand cubic feet
Cabin logs							
Softwood	M linear ft	719	316	-	-	719	316
Hardwood	M linear ft	-	-	-	-	-	-
Total	M linear ft	719	316	-	-	719	316
Other[c]							
Softwood	Mft^3		4,288		244		4,532
Hardwood	Mft^3		3,554		122		3,676
Total	Mft^3		7,842		366		8,208
Total industrial products							
Softwood	Mft^3		310,406		25,424		335,830
Hardwood	Mft^3		128,276		3,706		131,982
Total	Mft^3		438,682		29,130		467,812
Fuelwood[d]							
Softwood	std cord[e]	261,576	20,926	198,050	15,844	459,626	36,770
Hardwood	std cords	1,286,212	102,897	110,162	8,813	1,396,374	111,710
Total	std cords	1,547,788	123,823	308,212	24,657	1,856,000	148,480
All products[f]							
Softwood	Mft^3		331,332		41,268		372,600
Hardwood	Mft^3		231,173		12,519		243,692
Total	Mft^3		562,505		53,787		616,292

[a]International 1/4-inch rule.
[b]Rough wood basis, includes both production from roundwood and chips from manufacturing residues, equivalent to 85 cubic feet of solid wood.
[c]Includes fence stock, rails, and pickets.
[d]The estimate of total fuelwood output is from: Comprehensive Energy Resources Plan, by the Maine Office of Energy Resources, 1983. The estimate includes 994 thousand cords used for residential, 62 thousand cords used for commercial, and 800 thousand cords used for industrial energy. The estimate of output from manufacturing residues was derived from a complete canvass of wood using mills.
[e]Rough wood basis includes both production from roundwood and chips from manufacturing residues, equivalent to 80 cubic feet of solid wood.
[f]Does not include 5,367 cubic feet of softwood and 1,255 cubic feet of hardwood residues used for agricultural purposes.

Table 36.--Output of roundwood products by product, softwoods and hardwoods, and source of material, Maine, 1981

(In thousands of cubic feet)

Product and species group	Growing-stock trees[a]			Rough and rotten trees[a]	Salvable dead trees[a]	Other sources[b]	All sources
	Poletimber	Sawtimber	Total				
PRINCIPAL INDUSTRIAL PRODUCTS							
Sawlogs							
Softwood	1,265	93,137	94,402	297	1,503	20,805	117,007
Hardwood	153	8,460	8,613	262	-	706	9,581
Total	1,418	101,597	103,015	559	1,503	21,511	126,588
Veneer logs and bolts							
Softwood	20	1,127	1,147	-	-	94	1,241
Hardwood	77	4,208	4,285	-	-	351	4,636
Total	97	5,335	5,432	-	-	445	5,877
Pulpwood							
Softwood	35,498	113,397	148,895	6,298	1,305	30,381	186,879
Hardwood	20,083	62,382	82,465	8,143	387	12,621	103,616
Total	55,581	175,779	231,360	14,441	1,692	43,002	290,495
MISCELLANEOUS INDUSTRIAL PRODUCTS							
Turn stock							
Softwood	4	11	15	-	-	3	18
Hardwood	1,416	4,310	5,726	-	-	1,156	6,882
Total	1,420	4,321	5,741	-	-	1,159	6,900
Piling							
Softwood	-	-	-	-	-	-	-
Hardwood	d	2	2	-	-	d	2
Total	d	2	2	-	-	d	2
Poles							
Softwood	1	4	5	-	-	1	6
Hardwood	-	-	-	-	-	-	-
Total	1	4	5	-	-	1	6
Posts							
Softwood	134	408	542	-	-	109	651
Hardwood	1	3	4	-	-	1	5
Total	135	411	546	-	-	110	656
Cabin logs							
Softwood	3	252	255	1	4	56	316
Hardwood	-	-	-	-	-	-	-
Total	3	252	255	1	4	56	316
Other							
Softwood	882	2,686	3,568	-	-	720	4,288
Hardwood	731	2,226	2,957	-	-	597	3,554
Total	1,613	4,912	6,525	-	-	1,317	7,842

Table 36.--continued

(In thousands of cubic feet)

Product and species group	Growing-stock trees[a]			Rough and rotten trees[a]	Salvable dead trees[a]	Other sources[b]	All sources
	Poletimber	Sawtimber	Total				
	TOTAL INDUSTRIAL PRODUCTS						
Softwood	37,807	211,022	248,829	6,596	2,812	52,169	310,406
Hardwood	22,461	81,591	104,052	8,405	387	15,432	128,276
Total	60,268	292,613	352,881	15,001	3,199	67,601	438,682
	NONINDUSTRIAL PRODUCTS						
Fuelwood[c]							
Softwood	492	2,342	2,834	1,150	9,407	7,535	20,926
Hardwood	2,231	10,618	12,849	8,281	46,257	35,510	102,897
Total	2,723	12,960	15,683	9,431	55,664	43,045	123,823
	ALL PRODUCTS						
Softwood	38,299	213,364	251,663	7,746	12,219	59,704	331,332
Hardwood	24,692	92,209	116,901	16,686	46,644	50,942	231,173
Total	62,991	305,573	368,564	24,432	58,863	110,646	562,505

[a]On timberland.
[b]Includes trees less than 5.0 inches in diameter, tree tops and limbs from commercial forest areas, or any material from noncommercial forest land or nonforest land such as fence rows and suburban areas.
[c]The estimate of roundwood fuelwood output is adapted from: Comprehensive Energy Resources Plan, by the Maine Office of Energy Resources, 1983.
[d]Less than 500 cubic feet.

Table 37.--Timber removals from growing stock and sawtimber on timberland by item, softwoods and hardwoods, Maine, 1981

Item	Growing stock			Sawtimber		
	Softwoods	Hardwoods	All species	Softwoods	Hardwoods	All species
	--------Thousand cubic feet--------			------Thousand board feet[a]-----		
Roundwood products:						
Sawlogs	94,402	8,613	103,015	418,420	36,166	454,586
Veneer logs and bolts	1,147	4,285	5,432	5,063	17,989	23,052
Pulpwood	148,895	82,465	231,360	485,469	286,562	772,031
Turn stock	15	5,726	5,741	17,773	57	17,830
Piling	-	2	2	-	8	8
Poles	5	-	5	21	-	21
Posts	542	4	546	2,112	12	2,124
Cabin logs	255	-	255	1,132	-	1,132
Other	3,568	2,957	6,525	13,901	9,180	23,081
Fuelwood[b]	2,834	12,849	15,683	10,026	48,775	58,801
All products	251,663	116,901	368,564	953,917	398,749	1,352,666
Logging residues	28,634	3,184	31,818	75,814	22,342	98,156
Land use change[c]	4,349	2,393	6,742	10,123	4,619	14,742
Total removals	32,983	5,577	38,560	85,937	26,961	112,898

[a]International 1/4-inch rule.
[b]The estimate of growing-stock fuelwood is adapted from: Comprehensive Energy Resources Plan, by the Maine Office of Energy.
[c]The volume of timber removed from the timberland base from which no forest products were used, computed on an average annual basis.

Table 38.--Volume of unused residues[a] from primary manufacturing plants by softwoods and hardwoods, type of residue, and industry, Maine, 1981

(In thousands of cubic feet)

Species group and type of residue	Lumber[b]	Veneer and plywood	Other	All industries
Softwoods				
Coarse[c]	104	-	267	371
Fine[d]	154	-	208	362
Total	258	-	475	733
Hardwoods	10	-	19	29
Coarse	51	66	6	123
Fine				
Total	61	66	25	152
All species	114	-	286	400
Coarse	205	66	214	485
Fine				
Total	319	66	500	885

[a] Includes only woody material; does not include bark.
[b] Includes residues from sawlogs and boltwood sawn into lumber products.
[c] Includes slabs, edgings, trimmings, veneer cores, and other material suitable for chipping.
[d] Includes sawdust, shavings, and other materials considered unsuitable for chipping.

Table 39.--Sampling errors for estimates in various state level tables, Maine, 1971 and 1982

(In percent)

Forest type and forest-type group	Table 2 1971	Table 3 1982
Jack pine	100.1	-
Red pine	100.0	46.1
White pine	9.6	7.5
White pine/hemlock	19.3	11.6
Hemlock	14.4	11.3
White/red pine group	6.7	5.1
Balsam fir	7.9	8.8
Red spruce	10.1	8.7
Red spruce/balsam fir	5.0	4.7
White spruce	24.8	23.7
Black spruce	25.7	18.2
Northern white-cedar	9.0	7.0
Tamarack	33.2	27.2
Spruce/fir group	2.5	2.4
Pitch pine	100.0	70.7
Loblolly/shortleaf group	100.0	70.7
White pine/northern red oak/white ash	71.0	41.0
Oak/pine group	71.0	41.0
Post/black/bear oak	-	100.0
White oak/red oak/hickory	97.9	-
White oak	-	100.0
Northern red oak	24.5	16.6
Hawthorn/reverting field	-	100.1
Red maple/central hardwoods	50.2	36.3
Mixed central hardwoods	100.0	41.5
Oak/hickory group	20.7	13.7
Black ash/American elm/red maple	18.8	22.4
Willow	-	42.2
American elm/green ash	-	44.4
Elm/ash/red maple group	18.8	18.5
Sugar maple/beech/yellow birch	5.6	4.9
Black cherry	100.0	70.7
Red maple/northern hardwoods	9.9	8.0
Pin cherry/reverting field	-	23.9
Mixed northern hardwoods	14.3	12.8
Northern hardwoods group	4.2	3.5
Aspen	13.9	8.9
Paper birch	20.7	15.6
Gray birch	30.7	27.4
Aspen/birch group	10.6	7.3
Indeterminate	37.6	-
Total, all groups	.4	.3

Table 39.--continued

(In percent)

Stand-size class	Table 2 1971	Table 3 1982	Table 21
Sawtimber	3.0	2.2	2.2
Poletimber	3.5	2.9	3.7
Sapling and seedling	4.3	5.9	9.8
Nonstocked	99.0	51.2	-

Ownership class	Table 4
National Forest	-
Other public	12.4
Forest industry	2.2
Other private	2.2

Stand-volume class (board feet per acre)	Table 6
0 - 1,999	2.2
2,000 - 3,999	3.8
4,000 - 5,999	5.5
6,000 - 7,999	8.9
8,000 - 9,999	15.6
10,000+	16.1

Potential site productivity class	Table 7
Poor	26.9
Fair	7.6
Good	2.3
Very good	2.7

Stand-volume class (cubic feet per acre)	Table 8	Table 26
0-499	5.2	7.8
500-999	4.8	5.6
1000-1499	4.4	4.9
1500-1999	4.4	4.6
2000-2499	5.4	5.3
2500+	6.4	5.7

Green ton stand-volume class (green tons per acre)	Table 10
0-24	7.4
25-49	5.8
50-74	4.7
75-99	4.2
100-124	4.4
125-149	6.4
150-174	11.5
175-199	19.6
200+	33.3

Table 39.--continued

(In percent)

Stocking class of all live trees	Table 11
Nonstocked	51.2
Poorly stocked	11.4
Moderately stocked	6.8
Fully stocked	4.0
Overstocked	1.8

Stocking class of growing-stock trees	Table 12 1971	Table 13 1982
Nonstocked	30.0	33.0
Poorly stocked	11.2	8.4
Moderately stocked	4.5	5.0
Fully stocked	3.2	3.8
Overstocked	4.4	2.4

Basal area class (square feet per acre)	Table 14	Table 22
0-49	6.3	10.1
50-99	3.6	4.8
100-149	2.8	3.2
150-199	4.7	4.5
200-249	12.6	12.6
250-299	46.6	47.6
300+	-	-

Stocking class of all live trees	Table 15
0 - 15	51.2
16 - 19	46.8
20 - 29	40.2
30 - 39	26.5
40 - 49	26.3
50 - 59	18.9
60 - 69	17.7
70 - 79	16.4
80 - 89	12.4
90 - 99	13.5
100 - 109	8.8
109 - 119	7.8
120 - 129	6.8
130 - 139	5.3
140 - 149	4.1
150 - 160	4.2

Table 39.--continued

(In percent)

Diameter class	Table 16 Softwoods	Table 16 Hardwoods	Table 18	Table 19	Table 27 1971	Table 28 1982	Table 29 1971	Table 30 1982
Less than 1.0	3.7	3.4	2.5	-	-	-	-	-
1.0- 2.9	3.9	4.4	2.9	-	-	-	-	-
3.0- 4.9	4.3	5.2	3.3	(1.0-4.9)2.6	-	-	-	-
5.0- 6.9	2.7	3.0	1.9	1.6	2.2	2.2	-	-
7.0- 8.9	2.4	2.8	1.7	1.5	1.9	1.7	-	-
9.0-10.9	2.5	3.0	1.7	1.6	2.1	1.7	3.4	2.8
11.0-12.9	2.8	3.3	2.0	1.9	2.5	1.9	2.6	2.3
13.0-14.9	3.6	4.0	2.6	2.4	3.1	2.5	3.0	2.5
15.0-16.9	4.7	5.0	3.5	3.3	4.1	3.4	3.9	3.7
17.0-18.9	7.0	6.5	4.8	4.4	5.3	4.8	4.9	4.5
19.0-20.9	8.5	8.9	6.2	5.6	6.7	6.1	6.4	5.9
21.0-28.9	8.9	9.4	6.4	(21+)6.3	6.8	6.6	6.6	6.3
29.0 and larger	25.0	31.4	20.2	-	16.0	21.6	16.4	21.6
All classes	3.1	3.1	2.1	1.0	1.1	1.1	1.7	1.6

Table 39.--continued

(In percent)

Species	Table 17	Table 18	Table 19	Table 24 1971	Table 25 1982	Table 29 1971	Table 30 1982	Table 33
Balsam fir	2.7	3.0	2.7	3.1	3.1	5.2	4.7	3.2
Tamarack	15.8	15.6	14.8	19.9	15.2	25.3	18.6	14.8
White spruce	7.2	7.4	7.6	7.7	7.6	9.3	9.3	7.6
Black spruce	13.1	13.3	12.8	23.1	12.8	31.6	19.8	12.8
Red spruce	4.0	4.2	3.7	3.5	3.4	4.5	4.0	3.8
Red pine	31.5	30.8	27.3	22.5	25.9	28.1	25.0	27.1
White pine	6.0	6.5	5.6	7.3	5.7	7.2	5.7	5.8
Northern white-cedar	5.5	6.2	5.5	6.6	5.8	7.9	6.8	5.7
Hemlock	6.0	6.5	5.5	7.5	5.7	9.0	6.2	5.8
Other softwoods	26.8	30.9	27.7	100.3	33.1	100.6	35.6	30.1
Total softwoods	1.9	2.0	1.8	1.7	1.6	2.5	2.1	2.0
Sugar maple	5.8	6.3	5.5	7.0	6.3	7.7	7.4	5.9
Red/soft maple(s)	3.4	3.8	3.2	4.6	3.8	6.6	5.9	3.5
Yellow birch	4.2	4.9	4.4	6.0	5.4	7.2	6.9	4.8
Paper birch	4.9	5.3	4.6	6.8	5.0	11.3	8.8	4.8
Gray birch	9.6	13.0	10.8	99.7	12.6	-	36.9	10.6
Beech	6.5	7.7	6.3	8.2	8.0	10.5	10.0	7.3
White ash	10.3	10.6	10.0	13.6	11.4	16.9	17.3	10.9
Black ash	12.7	15.1	12.8	15.7	15.3	20.2	20.8	13.6
Aspen	6.3	6.6	5.9	9.5	6.4	15.6	8.9	6.3
White oaks	25.3	24.9	18.2	58.3	22.0	66.0	47.0	21.8
Red oaks	8.0	7.8	7.1	14.1	7.9	17.0	10.3	7.7
Basswood	21.4	23.5	22.3	19.3	27.9	24.2	36.6	27.3
Elm	18.7	20.0	27.9	22.5	34.6	26.4	53.8	33.7
Other commercial hrdwds.	14.2	17.0	13.9	27.7	16.6	43.5	25.0	15.4
Noncommercial hardwoods	8.2	-	7.3	-	-	-	-	9.6
Total hardwoods	1.9	2.2	1.9	3.0	2.5	3.9	3.6	2.1
Total, all species	1.1	1.3	1.0	1.1	1.1	1.7	1.6	1.2

Table 39.--continued

(In percent)

Class of material	Table 20 Volume	Weight
Sawlog portion	1.5	1.9
Upper stem	1.5	1.7
Total sawtimber trees	1.5	1.8
Poletimber trees	1.6	1.4
Rough cull trees	2.8	2.8
Rotten cull trees	3.6	3.6
Salvable dead trees	4.6	3.9
Saplings		2.6
Stumps		1.0
Tops - growing stock		1.1
Tops - rough and rotten		2.1
All non-growing stock		1.1
All classes		1.0

Forest type group	Table 21
White/red pine	5.5
Spruce/fir	2.7
Loblolly/shortleaf	99.0
Oak/pine	45.2
Oak/hickory	16.2
Elm/ash/red maple	22.8
Northern hardwoods	4.5
Aspen/birch	9.3

Standard lumber log grade (total hardwoods)	Table 31 1971	Table 32 1982
All sizes	1.7	1.6
Grade 1	2.6	2.3
Grade 2	4.4	3.5
Grade 3	3.3	2.9
Grade 4	5.1	3.9
>15" diameter		
Grade 1	4.8	4.1
Grade 2	5.3	4.7
Grade 3	4.5	4.0
Grade 4	7.2	6.1

Table 40.--Area of timberland by forest type, forest-type group, and geographic unit, Maine, 1982

(In thousands of acres)

Forest type and forest-type group	Aroostook County	Capital Region	Casco Bay	Hancock County	Penobscot County
Red pine	-	-	4.2	9.2	19.1
White pine	8.4	222.3	380.3	27.6	77.0
White pine/hemlock	-	68.2	181.5	9.3	86.7
Hemlock	33.9	68.3	113.1	46.8	132.4
White/red pine group	42.3	358.8	679.1	92.9	315.2
Balsam fir	285.0	63.3	12.9	46.3	47.4
Red spruce	215.8	49.9	8.2	94.0	95.9
Red spruce/balsam fir	846.9	58.6	8.3	177.2	336.0
White spruce	75.5	12.0	5.0	-	9.6
Black spruce	143.4	-	-	9.6	9.5
Northern white-cedar	636.2	44.5	-	66.3	297.2
Tamarack	34.8	15.5	4.4	9.6	9.5
Spruce/fir group	2,237.6	243.8	38.8	403.0	805.1
Pitch pine	-	-	8.3	-	-
Loblolly/shortleaf group	-	-	8.3	-	-
White pine/no. red oak/w. ash	-	4.0	21.6	-	-
Oak/pine group	-	4.0	21.6	-	-
Post/black/bear oak	-	-	4.2	-	-
White oak	-	-	4.2	-	-
Northern red oak	-	75.1	71.9	9.2	-
Hawthorn/reverting field	-	3.9	-	-	-
Red maple/central hardwoods	-	-	33.1	-	-
Mixed central hardwoods	-	-	20.9	9.7	-
Oak/hickory group	-	79.0	134.3	18.9	-
Black ash/Amer. elm/red maple	42.4	12.1	16.7	9.5	38.3
Willow	17.3	-	4.0	-	9.6
American elm/green ash	-	19.6	-	-	-
Elm/ash/red maple group	59.7	31.7	20.7	9.5	47.9
Sugar maple/beech/yellow birch	846.2	83.9	42.4	93.4	304.7
Black cherry	-	-	-	9.2	9.6
Red maple/northern hardwoods	92.9	186.2	142.7	55.8	105.0
Pin cherry/reverting field	43.4	16.3	17.3	-	9.0
Mixed northern hardwoods	50.2	36.2	63.6	27.6	76.6
Northern hardwoods group	1,032.7	322.6	266.0	186.0	504.9
Aspen	361.8	72.9	64.7	37.7	123.8
Paper birch	34.3	28.0	12.8	28.3	38.1
Gray birch	-	11.6	12.5	-	37.7
Aspen/birch group	396.1	112.5	90.0	66.0	199.6
All forest types	3,768.4	1,152.4	1,258.8	776.3	1,872.7

Table 40.--Continued

(In thousands of acres)

Forest type and forest-type group	Piscataquis County	Somerset County	Washington County	Western Maine	All units
Red pine	-	10.4	-	-	42.9
White pine	52.3	72.4	-	190.8	1,031.1
White pine/hemlock	12.3	31.0	31.7	84.9	505.6
Hemlock	31.5	62.1	63.3	63.7	615.1
White/red pine group	96.1	175.9	95.0	339.4	2,194.7
Balsam fir	115.6	186.9	118.4	225.5	1,101.3
Red spruce	283.6	176.5	158.0	84.1	1,166.0
Red spruce/balsam fir	661.6	633.5	327.4	271.6	3,321.1
White spruce	10.5	-	21.1	21.2	154.9
Black spruce	10.5	51.8	42.7	10.7	278.2
Northern white-cedar	244.6	207.2	126.6	10.6	1,633.2
Tamarack	31.5	-	10.5	-	115.8
Spruce/fir group	1,357.9	1,255.9	804.7	623.7	7,770.5
Pitch pine	-	-	-	-	8.3
Loblolly/shortleaf group	-	-	-	-	8.3
White pine/no. red oak/w. ash	-	-	-	10.6	36.2
Oak/pine group	-	-	-	10.6	36.2
Post/black/bear oak	-	-	-	-	4.2
White oak	-	-	-	-	4.2
Northern red oak	-	10.4	10.6	31.8	209.0
Hawthorn/reverting field	-	-	-	-	3.9
Red maple/central hardwoods	-	-	11.0	-	44.1
Mixed central hardwoods	10.5	-	-	-	41.1
Oak/hickory group	10.5	10.4	21.6	31.8	306.5
Black ash/Amer. elm/red maple	10.5	10.3	21.1	5.4	166.3
Willow	-	10.4	11.0	-	52.3
American elm/green ash	-	-	-	-	19.6
Elm/ash/red maple group	10.5	20.7	32.1	5.4	238.2
Sugar maple/beech/yellow birch	462.3	571.1	158.4	571.8	3,134.2
Black cherry	-	-	-	-	18.8
Red maple/northern hardwoods	143.9	93.2	139.1	249.4	1,208.2
Pin cherry/reverting field	-	20.7	-	19.2	125.9
Mixed northern hardwoods	52.4	62.1	21.0	124.1	513.8
Northern hardwoods group	658.6	747.1	318.5	964.5	5,000.9
Aspen	83.5	72.8	128.5	75.2	1,020.9
Paper birch	21.0	51.7	21.1	134.8	370.1
Gray birch	-	-	32.7	19.4	113.9
Aspen/birch group	104.5	124.5	182.3	229.4	1,504.9
All forest types	2,238.1	2,334.5	1,454.2	2,204.8	17,060.2

Table 41.--Area of timberland by ownership class and geographic unit, Maine, 1982

(In thousands of acres)

Ownership class	Aroostook County	Capital Region	Casco Bay	Hancock County	Penobscot County
National Forest	-	-	3.2	-	3.7
Other federal	5.6	.2	1.7	.5	-
State	82.7	9.6	7.6	22.0	22.9
Indian[a]	-	-	-	16.5	80.3
County and municipal	76.0	7.2	8.1	2.5	6.9
Total public	164.3	17.0	20.6	41.5	113.8
Forest industry[b]	1,955.6	38.6	104.4	337.0	761.1
Farmer[c]	273.4	202.9	268.1	64.6	132.8
Miscellaneous private:					
Individual	488.8	777.8	753.6	242.1	381.9
Corporate	58.9	53.3	30.3	17.7	69.6
Other	827.4	62.8	81.8	73.4	413.5
Total private	3,604.1	1,135.4	1,238.2	734.8	1,758.9
All ownerships	3,768.4	1,152.4	1,258.8	776.3	1,872.7

Table 41.--Continued

Ownership class	Piscataquis County	Somerset County	Washington County	Western Maine	All units
National Forest	-	-	-	38.7	45.6
Other federal	-	-	11.2	-	19.2
State	86.0	55.4	22.5	45.5	354.2
Indian[a]	2.7	-	11.6	46.0	157.1
County and municipal	2.9	2.2	.5	7.7	114.0
Total public	91.6	57.6	45.8	137.9	690.1
Forest industry[b]	1,433.1	1,647.9	858.1	881.1	8,016.9
Farmer[c]	20.0	105.5	94.2	145.0	1,306.5
Miscellaneous private:					
Individual	130.3	244.2	311.9	673.3	4,003.9
Corporate	37.9	159.2	28.4	117.1	572.4
Other	525.2	120.1	115.8	250.4	2,470.4
Total private	2,146.5	2,276.9	1,408.4	2,066.9	16,370.1
All ownerships	2,238.1	2,334.5	1,454.2	2,204.8	17,060.2

[a] Includes trust and fee tribal lands.
[b] Includes unincorporated forest industry.
[c] Includes lands owned by part-time farmers and corporations engaged in agriculture.

Table. 42--Net volume of growing-stock and sawtimber trees on timberland by geographic unit and ownership class, Maine, 1982

Geographic unit	Ownership class			All classes
	Public[a]	Forest industry	Other private	
	GROWING STOCK			
	Million cubic feet			
Aroostook County	268.3	2,818.3	2,262.4	5,349.0
Capital Region	16.9	53.3	1,339.9	1,410.1
Casco Bay	25.7	179.1	1,443.0	1,647.8
Hancock County	71.1	371.2	482.0	924.3
Penobscot County	135.2	1,057.8	1,012.7	2,205.7
Piscataquis County	149.5	2,225.7	1,075.7	3,450.9
Somerset County	87.2	2,501.7	832.3	3,421.2
Washington County	38.1	863.6	457.1	1,358.8
Western Maine	171.4	1,306.9	1,550.0	3,028.3
Total, all units	963.4	11,377.6	10,455.1	22,796.1
	SAWTIMBER			
	Million board feet[b]			
Aroostook County	615.7	6,088.2	4,452.4	11,156.3
Capital Region	37.3	127.9	2,797.9	2,963.1
Casco Bay	63.0	519.1	3,584.6	4,166.7
Hancock County	189.8	633.0	998.9	1,821.7
Penobscot County	360.9	2,393.0	1,838.1	4,592.0
Piscataquis County	288.3	5,208.9	2,291.3	7,788.5
Somerset County	258.1	4,965.6	1,592.5	6,816.2
Washington County	63.8	1,684.7	859.1	2,607.6
Western Maine	248.2	2,515.9	3,001.2	5,765.3
Total, all units	2,125.1	24,136.3	21,416.0	47,677.4

[a]Includes 52.6 million cubic feet and 84.6 million board feet in the White Mountain National Forest in Oxford County.

[b]International 1/4-inch rule.

Table 43.--Area of timberland by forest type, forest-type group, and stand-size class, Aroostook County, Maine, 1971

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
White pine	13.1	.0	.0	.0	13.1
Hemlock	23.7	.0	.0	.0	23.7
White/red pine group	36.8	.0	.0	.0	36.8
Balsam fir	209.7	339.6	111.8	.0	661.1
Red spruce	143.7	36.8	22.4	.0	202.9
Red spruce/balsam fir	680.6	273.3	150.5	.0	1,104.4
White spruce	23.7	23.7	48.6	.0	96.0
Black spruce	13.1	12.8	25.8	.0	51.7
Northern white-cedar	255.6	125.1	24.0	.0	404.7
Tamarack	.0	13.0	.0	.0	13.0
Spruce/fir group	1,326.4	824.3	383.1	.0	2,533.8
Black ash/Amer. elm/red maple	11.2	13.1	.0	.0	24.3
Elm/ash/red maple group	11.2	13.1	.0	.0	24.3
Sugar maple/beech/yellow birch	460.8	198.5	119.4	.0	778.7
Red maple/northern hardwoods	69.3	34.6	39.0	.0	142.9
Mixed northern hardwoods	25.8	25.9	13.1	.0	64.8
Northern hardwoods group	555.9	259.0	171.5	.0	986.4
Aspen	21.8	77.1	37.4	.0	136.3
Paper birch	.0	.0	23.7	.0	23.7
Aspen/birch group	21.8	77.1	61.1	.0	160.0
All forest types	1,952.1	1,173.5	615.7	.0	3,741.3

Table 44.--Area of timberland by forest type, forest-type group, and stand-size class, Aroostook County, Maine, 1982

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
White pine	8.4	.0	.0	.0	8.4
Hemlock	25.4	8.5	.0	.0	33.9
White/red pine group	33.8	8.5	.0	.0	42.3
Balsam fir	116.4	143.6	16.6	8.4	285.0
Red spruce	116.0	74.6	25.2	.0	215.8
Red spruce/balsam fir	595.0	234.7	17.2	.0	846.9
White spruce	41.8	33.7	.0	.0	75.5
Black spruce	8.5	101.4	33.5	.0	143.4
Northern white-cedar	439.9	127.3	69.0	.0	636.2
Tamarack	17.2	8.8	8.8	.0	34.8
Spruce/fir group	1,334.8	724.1	170.3	8.4	2,237.6
Black ash/Amer. elm/red maple	8.8	33.6	.0	.0	42.4
Willow	.0	.0	17.3	.0	17.3
Elm/ash/red maple group	8.8	33.6	17.3	.0	59.7
Sugar maple/beech/yellow birch	669.4	116.9	59.9	.0	846.2
Red maple/northern hardwoods	8.5	75.9	8.5	.0	92.9
Pin cherry/reverting field	.0	.0	43.4	.0	43.4
Mixed northern hardwoods	16.5	33.7	.0	.0	50.2
Northern hardwoods group	694.4	226.5	111.8	.0	1,032.7
Aspen	42.3	235.9	83.6	.0	361.8
Paper birch	.0	25.5	8.8	.0	34.3
Aspen/birch group	42.3	261.4	92.4	.0	396.1
All forest types	2,114.1	1,254.1	391.8	8.4	3,768.4

Table 45.--Area of timberland by forest type, forest-type group, and stand-size class, Capital Region, Maine, 1971

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
White pine	25.5	54.2	115.0	.0	194.7
White pine/hemlock	24.9	11.9	.0	.0	36.8
Hemlock	37.9	34.0	12.7	.0	84.6
White/red pine group	88.3	100.1	127.7	.0	316.1
Balsam fir	.0	24.2	62.4	.0	86.6
Red spruce	16.5	.0	13.6	.0	30.1
Red spruce/balsam fir	12.8	25.3	42.2	.0	80.3
Black spruce	12.7	12.8	.0	.0	25.5
Northern white-cedar	25.8	25.1	12.8	.0	63.7
Spruce/fir group	67.8	87.4	131.0	.0	286.2
White pine/no. red oak/white ash	.0	.0	12.0	.0	12.0
Oak/pine group	.0	.0	12.0	.0	12.0
Northern red oak	11.9	25.7	.0	.0	37.6
Red maple/central hardwoods	11.9	.0	11.7	.0	23.6
Oak/hickory group	23.8	25.7	11.7	.0	61.2
Black ash/Amer. elm/red maple	24.7	12.9	54.4	.0	92.0
Elm/ash/red maple group	24.7	12.9	54.4	.0	92.0
Sugar maple/beech/yellow birch	29.9	38.0	24.7	.0	92.6
Red maple/northern hardwoods	27.6	27.9	76.1	.0	131.6
Mixed northern hardwoods	27.1	.0	46.7	.0	73.8
Northern hardwoods group	84.6	65.9	147.5	.0	298.0
Aspen	.0	11.7	20.8	.0	32.5
Paper birch	12.7	12.9	.0	.0	25.6
Gray birch	.0	.0	23.6	.0	23.6
Aspen/birch group	12.7	24.6	44.4	.0	81.7
Indeterminate	.0	.0	23.6	.0	23.6
All forest types	301.9	316.6	552.3	.0	1,170.8

Table 46.--Area of timberland by forest type, forest-type group, and stand-size class, Capital Region, Maine, 1982

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
White pine	166.7	39.4	16.2	.0	222.3
White pine/hemlock	48.1	20.1	.0	.0	68.2
Hemlock	52.1	12.2	4.0	.0	68.3
White/red pine group	266.9	71.7	20.2	.0	358.8
Balsam fir	.0	35.6	27.7	.0	63.3
Red spruce	39.3	10.6	.0	.0	49.9
Red spruce/balsam fir	23.3	31.4	3.9	.0	58.6
White spruce	4.0	8.0	.0	.0	12.0
Northern white-cedar	16.3	24.2	4.0	.0	44.5
Tamarack	4.0	7.7	3.8	.0	15.5
Spruce/fir group	86.9	117.5	39.4	.0	243.8
White pine/no. red oak/white ash	.0	4.0	.0	.0	4.0
Oak/pine group	.0	4.0	.0	.0	4.0
Northern red oak	35.1	27.8	12.2	.0	75.1
Hawthorn/reverting field	3.9	.0	.0	.0	3.9
Oak/hickory group	39.0	27.8	12.2	.0	79.0
Black ash/Amer. elm/red maple	.0	12.1	.0	.0	12.1
Amer. elm/green ash	4.0	11.6	4.0	.0	19.6
Elm/ash/red maple group	4.0	23.7	4.0	.0	31.7
Sugar maple/beech/yellow birch	12.0	55.7	16.2	.0	83.9
Red maple/northern hardwoods	69.0	96.8	20.4	.0	186.2
Pin cherry/reverting field	.0	.0	16.3	.0	16.3
Mixed northern hardwoods	20.2	16.0	.0	.0	36.2
Northern hardwoods group	101.2	168.5	52.9	.0	322.6
Aspen	4.0	61.0	7.9	.0	72.9
Paper birch	.0	24.0	4.0	.0	28.0
Gray birch	.0	11.6	.0	.0	11.6
Aspen/birch group	4.0	96.6	11.9	.0	112.5
All forest types	502.0	509.8	140.6	.0	1,152.4

Table 47.--Area of timberland by forest type, forest-type group, and stand-size class, Casco Bay, Maine, 1971

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
White pine	263.1	88.7	157.6	.0	509.4
White pine/hemlock	79.5	24.8	13.7	.0	118.0
Hemlock	39.1	25.0	37.3	.0	101.4
White/red pine group	381.7	138.5	208.6	.0	728.8
Red spruce	11.8	.0	.0	.0	11.8
Tamarack	.0	.0	14.4	.0	14.4
Spruce/fir group	11.8	.0	14.4	.0	26.2
Pitch pine	.0	.0	13.7	.0	13.7
Loblolly/shortleaf group	.0	.0	13.7	.0	13.7
White pine/no. red oak/wh. ash	.0	14.4	.0	.0	14.4
Oak/pine group	.0	14.4	.0	.0	14.4
White oak/red oak/hickory	.0	.0	12.0	.0	12.0
Northern red oak	22.5	51.9	.0	.0	74.4
Red maple/central hardwoods	14.4	.0	12.0	.0	26.4
Mixed central hardwoods	.0	.0	13.7	.0	13.7
Oak/hickory group	36.9	51.9	37.7	.0	126.5
Black ash/Amer. elm/red maple	.0	.0	37.9	.0	37.9
Elm/ash/red maple group	.0	.0	37.9	.0	37.9
Sugar maple/beech/yellow birch	35.0	13.6	13.7	.0	62.3
Red maple/northern hardwoods	13.0	49.3	55.0	.0	117.3
Mixed northern hardwoods	.0	23.6	.0	.0	23.6
Northern hardwoods group	48.0	86.5	68.7	.0	203.2
Aspen	.0	11.4	39.7	.0	51.1
Paper birch	.0	12.9	22.8	.0	35.7
Gray birch	.0	.0	25.1	.0	25.1
Aspen/birch group	.0	24.3	87.6	.0	111.9
Indeterminate	.0	.0	27.1	.0	27.1
All forest types	478.4	315.6	495.7	.0	1,289.7

Table 48.--Area of timberland by forest type, forest-type group, and stand-size class, Casco Bay, Maine, 1982

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Red pine	4.2	.0	.0	.0	4.2
White pine	279.5	75.8	25.0	.0	380.3
White pine/hemlock	122.4	50.8	8.3	.0	181.5
Hemlock	92.4	12.7	8.0	.0	113.1
White/red pine group	498.5	139.3	41.3	.0	679.1
Balsam fir	4.3	4.3	4.3	.0	12.9
Red spruce	8.2	.0	.0	.0	8.2
Red spruce/balsam fir	.0	8.3	.0	.0	8.3
White spruce	.0	.0	.0	5.0	5.0
Tamarack	4.4	.0	.0	.0	4.4
Spruce/fir group	16.9	12.6	4.3	5.0	38.8
Pitch pine	4.1	.0	4.2	.0	8.3
Loblolly/shortleaf group	4.1	.0	4.2	.0	8.3
White pine/no. red oak/wh. ash	4.9	16.7	.0	.0	21.6
Oak/pine group	4.9	16.7	.0	.0	21.6
Post, black or bear oak	.0	4.2	.0	.0	4.2
White oak	4.2	.0	.0	.0	4.2
Northern red oak	21.8	42.2	7.9	.0	71.9
Red maple/central hardwoods	12.5	12.7	7.9	.0	33.1
Mixed central hardwoods	8.4	12.5	.0	.0	20.9
Oak/hickory group	46.9	71.6	15.8	.0	134.3
Black ash/Amer. elm/red maple	3.7	8.5	4.5	.0	16.7
Willow	.0	.0	4.0	.0	4.0
Elm/ash/red maple group	3.7	8.5	8.5	.0	20.7
Sugar maple/beech/yellow birch	8.4	29.7	4.3	.0	42.4
Red maple/northern hardwoods	51.6	74.9	16.2	.0	142.7
Pin cherry/reverting field	.0	.0	17.3	.0	17.3
Mixed northern hardwoods	17.1	38.0	8.5	.0	63.6
Northern hardwoods group	77.1	142.6	46.3	.0	266.0
Aspen	4.3	38.2	22.2	.0	64.7
Paper birch	.0	12.8	.0	.0	12.8
Gray birch	4.2	.0	8.3	.0	12.5
Aspen/birch group	8.5	51.0	30.5	.0	90.0
All forest types	660.6	442.3	150.9	5.0	1,258.8

Table 49.--Area of timberland by forest type, forest-type group, and stand-size class, Hancock County, Maine, 1971

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Jack pine	.0	.0	11.0	.0	11.0
White pine	.0	8.6	21.9	.0	30.5
White pine/hemlock	.0	8.6	.0	.0	8.6
Hemlock	25.5	23.2	.0	.0	48.7
White/red pine group	25.5	40.4	32.9	.0	98.8
Balsam fir	.0	28.2	48.5	.0	76.7
Red spruce	42.7	64.7	22.7	.0	130.1
Red spruce/balsam fir	36.5	47.8	8.6	.0	92.9
White spruce	10.9	.0	.0	.0	10.9
Northern white-cedar	43.1	30.5	20.7	.0	94.3
Tamarack	.0	.0	11.7	.0	11.7
Spruce/fir group	133.2	171.2	112.2	.0	416.6
Northern red oak	.0	.0	11.0	.0	11.0
Oak/hickory group	.0	.0	11.0	.0	11.0
Black ash/Amer. elm/red maple	.0	11.0	.0	.0	11.0
Elm/ash/red maple group	.0	11.0	.0	.0	11.0
Sugar maple/beech/yellow birch	36.8	28.2	11.7	.0	76.7
Red maple/northern hardwoods	11.7	.0	41.6	.0	53.3
Mixed northern hardwoods	.0	11.0	11.0	.0	22.0
Northern hardwoods group	48.5	39.2	64.3	.0	152.0
Aspen	.0	8.6	.0	.0	8.6
Gray birch	.0	.0	21.6	.0	21.6
Aspen/birch group	.0	8.6	21.6	.0	30.2
All forest types	207.2	270.4	242.0	.0	719.6

Table 50.--Area of timberland by forest type, forest-type group, and stand-size class, Hancock County, Maine, 1982

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Red pine	.0	.0	9.2	.0	9.2
White pine	18.4	9.2	.0	.0	27.6
White pine/hemlock	9.3	.0	.0	.0	9.3
Hemlock	46.8	.0	.0	.0	46.8
White/red pine group	74.5	9.2	9.2	.0	92.9
Balsam fir	.0	46.3	.0	.0	46.3
Red spruce	75.1	9.2	.0	9.7	94.0
Red spruce/balsam fir	56.4	83.3	37.5	.0	177.2
Black spruce	.0	9.6	.0	.0	9.6
Northern white-cedar	47.5	18.8	.0	.0	66.3
Tamarack	9.6	.0	.0	.0	9.6
Spruce/fir group	188.6	167.2	37.5	9.7	403.0
Northern red oak	9.2	.0	.0	.0	9.2
Mixed central hardwoods	.0	.0	9.7	.0	9.7
Oak/hickory group	9.2	.0	9.7	.0	18.9
Black ash/Amer. elm/red maple	.0	9.5	.0	.0	9.5
Elm/ash/red maple group	.0	9.5	.0	.0	9.5
Sugar maple/beech/yellow birch	56.3	37.1	.0	.0	93.4
Black cherry	.0	.0	9.2	.0	9.2
Red maple/northern hardwoods	18.3	9.6	27.9	.0	55.8
Mixed northern hardwoods	.0	18.4	9.2	.0	27.6
Northern hardwoods group	74.6	65.1	46.3	.0	186.0
Aspen	.0	28.0	9.7	.0	37.7
Paper birch	.0	28.3	.0	.0	28.3
Aspen/birch group	.0	56.3	9.7	.0	66.0
All forest types	346.9	307.3	112.4	9.7	776.3

Table 51.--Area of timberland by forest type, forest-type group, and stand-size class, Penobscot County, Maine, 1971

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
White pine	25.3	12.4	.0	.0	37.7
White pine/hemlock	38.3	12.6	12.6	.0	63.5
Hemlock	89.2	25.5	12.4	.0	127.1
White/red pine group	152.8	50.5	25.0	.0	228.3
Balsam fir	50.0	76.0	25.0	.0	151.0
Red spruce	50.8	25.0	25.0	.0	100.8
Red spruce/balsam fir	217.0	152.6	37.6	.0	407.2
White spruce	.0	12.6	24.8	.0	37.4
Black spruce	.0	12.6	12.7	.0	25.3
Northern white-cedar	88.8	100.8	50.1	.0	239.7
Tamarack	.0	12.6	12.6	.0	25.2
Spruce/fir group	406.6	392.2	187.8	.0	986.6
Black ash/Amer. elm/red maple	.0	25.0	37.6	.0	62.6
Elm/ash/red maple group	.0	25.0	37.6	.0	62.6
Sugar maple/beech/yellow birch	114.0	75.8	61.3	.0	251.1
Red maple/northern hardwoods	63.4	63.6	25.3	.0	152.3
Mixed northern hardwoods	64.1	25.7	.0	.0	89.8
Northern hardwoods group	241.5	165.1	86.6	.0	493.2
Aspen	.0	.0	38.0	.0	38.0
Paper birch	.0	12.6	.0	.0	12.6
Gray birch	.0	.0	25.7	.0	25.7
Aspen/birch group	.0	12.6	63.7	.0	76.3
Indeterminate	.0	.0	13.2	.0	13.2
All forest types	800.9	645.4	413.9	.0	1,860.2

Table 52.--Area of timberland by forest type, forest-type group, and stand-size class, Penobscot County, Maine, 1982

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Red pine	9.5	9.6	.0	.0	19.1
White pine	57.8	9.6	9.6	.0	77.0
White pine/hemlock	48.3	38.4	.0	.0	86.7
Hemlock	103.7	28.7	.0	.0	132.4
White/red pine group	219.3	86.3	9.6	.0	315.2
Balsam fir	9.6	28.8	9.0	.0	47.4
Red spruce	67.3	28.6	.0	.0	95.9
Red spruce/balsam fir	211.4	96.0	28.6	.0	336.0
White spruce	9.6	.0	.0	.0	9.6
Black spruce	.0	.0	9.5	.0	9.5
Northern white-cedar	125.0	162.6	9.6	.0	297.2
Tamarack	.0	9.5	.0	.0	9.5
Spruce/fir group	422.9	325.5	56.7	.0	805.1
Black ash/Amer. elm/red maple	19.1	19.2	.0	.0	38.3
Willow	.0	.0	9.6	.0	9.6
Elm/ash/red maple group	19.1	19.2	9.6	.0	47.9
Sugar maple/beech/yellow birch	133.5	151.9	19.3	.0	304.7
Black cherry	.0	9.6	.0	.0	9.6
Red maple/northern hardwoods	28.5	66.7	9.8	.0	105.0
Pin cherry/reverting field	.0	.0	.0	9.0	9.0
Mixed northern hardwoods	48.0	28.6	.0	.0	76.6
Northern hardwoods group	210.0	256.8	29.1	9.0	504.9
Aspen	19.2	104.6	.0	.0	123.8
Paper birch	.0	38.1	.0	.0	38.1
Gray birch	.0	19.2	18.5	.0	37.7
Aspen/birch group	19.2	161.9	18.5	.0	199.6
All forest types	890.5	849.7	123.5	9.0	1,872.7

Table 53.--Area of timberland by forest type, forest-type group, and stand-size class, Piscataquis County, Maine, 1971

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
White pine	25.5	.0	.0	.0	25.5
Hemlock	12.6	.0	.0	.0	12.6
White/red pine group	38.1	.0	.0	.0	38.1
Balsam fir	39.0	63.6	36.6	.0	139.2
Red spruce	142.6	90.1	25.4	.0	258.1
Red spruce/balsam fir	400.4	179.3	101.5	.0	681.2
White spruce	.0	.0	13.5	.0	13.5
Black spruce	12.8	12.8	25.4	.0	51.0
Northern white-cedar	167.8	38.1	38.0	.0	243.9
Spruce/fir group	762.6	383.9	240.4	.0	1,386.9
Black ash/Amer. elm/red maple	.0	.0	25.3	.0	25.3
Elm/ash/red maple group	.0	.0	25.3	.0	25.3
Sugar maple/beech/yellow birch	370.6	152.4	36.8	.0	559.8
Black cherry	.0	12.8	.0	.0	12.8
Red maple/northern hardwoods	12.6	49.4	38.0	.0	100.0
Mixed northern hardwoods	50.7	12.6	11.3	.0	74.6
Northern hardwoods group	433.9	227.2	86.1	.0	747.2
Aspen	.0	12.7	11.3	.0	24.0
Paper birch	.0	12.8	12.6	.0	25.4
Aspen/birch group	.0	25.5	23.9	.0	49.4
All forest types	1,234.6	636.6	375.7	.0	2,246.9

Table 54.--Area of timberland by forest type, forest-type group, and stand-size class, Piscataquis County, Maine, 1982

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
White pine	31.4	20.9	.0	.0	52.3
White pine/hemlock	12.3	.0	.0	.0	12.3
Hemlock	21.1	10.4	.0	.0	31.5
White/red pine group	64.8	31.3	.0	.0	96.1
Balsam fir	42.2	41.9	31.5	.0	115.6
Red spruce	106.8	156.3	20.5	.0	283.6
Red spruce/balsam fir	456.9	129.4	75.3	.0	661.6
White spruce	10.5	.0	.0	.0	10.5
Black spruce	.0	10.5	.0	.0	10.5
Northern white-cedar	182.3	20.4	41.9	.0	244.6
Tamarack	10.5	10.5	10.5	.0	31.5
Spruce/fir group	809.2	369.0	179.7	.0	1,357.9
Mixed central hardwoods	10.5	.0	.0	.0	10.5
Oak/hickory group	10.5	.0	.0	.0	10.5
Black ash/Amer. elm/red maple	.0	10.5	.0	.0	10.5
Elm/ash/red maple group	.0	10.5	.0	.0	10.5
Sugar maple/beech/yellow birch	303.6	127.8	30.9	.0	462.3
Red maple/northern hardwoods	75.5	45.5	22.9	.0	143.9
Mixed northern hardwoods	10.5	31.4	10.5	.0	52.4
Northern hardwoods group	389.6	204.7	64.3	.0	658.6
Aspen	10.5	52.6	20.4	.0	83.5
Paper birch	.0	.0	21.0	.0	21.0
Aspen/birch group	10.5	52.6	41.4	.0	104.5
All forest types	1,284.6	668.1	285.4	.0	2,238.1

Table 55.--Area of timberland by forest type, forest-type group, and stand-size class, Somerset County, Maine, 1971

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
White pine	.0	14.4	57.9	.0	72.3
White pine/hemlock	.0	.0	12.1	.0	12.1
Hemlock	26.4	24.0	12.0	.0	62.4
White/red pine group	26.4	38.4	82.0	.0	146.8
Balsam fir	82.4	151.3	24.9	.0	258.6
Red spruce	50.4	69.9	12.1	.0	132.4
Red spruce/balsam fir	259.9	246.4	24.0	.0	530.3
White spruce	12.1	.0	.0	.0	12.1
Northern white-cedar	74.3	74.4	24.0	.0	172.7
Spruce/fir group	479.1	542.0	85.0	.0	1,106.1
Black ash/Amer. elm/red maple	12.1	.0	24.1	.0	36.2
Elm/ash/red maple group	12.1	.0	24.1	.0	36.2
Sugar maple/beech/yellow birch	379.1	132.3	50.6	.0	562.0
Red maple/northern hardwoods	26.4	75.2	66.1	.0	167.7
Mixed northern hardwoods	26.3	67.2	.0	.0	93.5
Northern hardwoods group	431.8	274.7	116.7	.0	823.2
Aspen	12.0	101.8	24.1	.0	137.9
Paper birch	14.4	12.9	8.0	.0	35.3
Aspen/birch group	26.4	114.7	32.1	.0	173.2
All forest types	975.8	969.8	339.9	.0	2,285.5

Table 56.--Area of timberland by forest type, forest-type group, and stand-size class, Somerset County, Maine, 1982

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Red pine	10.4	.0	.0	.0	10.4
White pine	41.4	20.7	10.3	.0	72.4
White pine/hemlock	20.7	10.3	.0	.0	31.0
Hemlock	10.3	41.4	10.4	.0	62.1
White/red pine group	82.8	72.4	20.7	.0	175.9
Balsam fir	83.1	72.7	31.1	.0	186.9
Red spruce	93.1	83.4	.0	.0	176.5
Red spruce/balsam fir	333.2	217.6	82.7	.0	633.5
Black spruce	.0	51.8	.0	.0	51.8
Northern white-cedar	145.2	51.7	10.3	.0	207.2
Spruce/fir group	654.6	477.2	124.1	.0	1,255.9
Northern red oak	.0	10.4	.0	.0	10.4
Oak/hickory group	.0	10.4	.0	.0	10.4
Black ash/Amer. elm/red maple	.0	10.3	.0	.0	10.3
Willow	10.4	.0	.0	.0	10.4
Elm/ash/red maple group	10.4	10.3	.0	.0	20.7
Sugar maple/beech/yellow birch	425.9	124.5	20.7	.0	571.1
Red maple/northern hardwoods	31.1	41.4	20.7	.0	93.2
Pin cherry/reverting field	.0	.0	20.7	.0	20.7
Mixed northern hardwoods	20.7	31.0	10.4	.0	62.1
Northern hardwoods group	477.7	196.9	72.5	.0	747.1
Aspen	21.0	31.1	20.7	.0	72.8
Paper birch	10.3	41.4	.0	.0	51.7
Aspen/birch group	31.3	72.5	20.7	.0	124.5
All forest types	1,256.8	839.7	238.0	.0	2,334.5

Table 57.--Area of timberland by forest type, forest-type group, and stand-size class, Washington County, Maine, 1971

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Red pine	.0	.0	10.5	.0	10.5
White pine	10.0	10.3	.0	.0	20.3
White pine/hemlock	20.3	.0	.0	.0	20.3
Hemlock	.0	20.7	10.4	.0	31.1
White/red pine group	30.3	31.0	20.9	.0	82.2
Balsam fir	.0	93.2	41.4	.0	134.6
Red spruce	51.2	124.3	10.4	.0	185.9
Red spruce/balsam fir	164.2	217.0	41.4	.0	422.6
Black spruce	.0	20.4	10.4	.0	30.8
Northern white-cedar	31.1	72.6	20.7	.0	124.4
Tamarack	.0	10.4	20.7	.0	31.1
Spruce/fir group	246.5	537.9	145.0	.0	929.4
Northern red oak	.0	10.5	10.4	.0	20.9
Oak/hickory group	.0	10.5	10.4	.0	20.9
Black ash/Amer. elm/red maple	.0	20.6	10.4	.0	31.0
Elm/ash/red maple group	.0	20.6	10.4	.0	31.0
Sugar maple/beech/yellow birch	41.1	.0	20.8	.0	61.9
Red maple/northern hardwoods	20.3	51.6	20.1	.0	92.0
Mixed northern hardwoods	20.2	31.0	.0	.0	51.2
Northern hardwoods group	81.6	82.6	40.9	.0	205.1
Aspen	20.7	10.4	51.9	.0	83.0
Paper birch	20.3	20.7	20.2	.0	61.2
Gray birch	.0	.0	10.3	.0	10.3
Aspen/birch group	41.0	31.1	82.4	.0	154.5
Indeterminate	.0	.0	10.3	.0	10.3
All forest types	399.4	713.7	320.3	.0	1,433.4

Table 58.--Area of timberland by forest type, forest-type group, and stand-size class, Washington County, Maine, 1982

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
White pine/hemlock	21.1	10.6	.0	.0	31.7
Hemlock	52.7	10.6	.0	.0	63.3
White/red pine group	73.8	21.2	.0	.0	95.0
Balsam fir	21.9	52.8	43.7	.0	118.4
Red spruce	73.8	84.2	.0	.0	158.0
Red spruce/balsam fir	137.3	158.2	31.9	.0	327.4
White spruce	10.5	10.6	.0	.0	21.1
Black spruce	.0	31.7	11.0	.0	42.7
Northern white-cedar	73.9	42.2	10.5	.0	126.6
Tamarack	.0	10.5	.0	.0	10.5
Spruce/fir group	317.4	390.2	97.1	.0	804.7
Northern red oak	.0	10.6	.0	.0	10.6
Red maple/central hardwoods	.0	.0	11.0	.0	11.0
Oak/hickory group	.0	10.6	11.0	.0	21.6
Black ash/Amer. elm/red maple	.0	21.1	.0	.0	21.1
Willow	.0	.0	11.0	.0	11.0
Elm/ash/red maple group	.0	21.1	11.0	.0	32.1
Sugar maple/beech/yellow birch	84.4	42.4	31.6	.0	158.4
Red maple/northern hardwoods	21.0	85.5	32.6	.0	139.1
Mixed northern hardwoods	10.5	10.5	.0	.0	21.0
Northern hardwoods group	115.9	138.4	64.2	.0	318.5
Aspen	42.2	21.6	64.7	.0	128.5
Paper birch	.0	10.5	10.6	.0	21.1
Gray birch	.0	.0	32.7	.0	32.7
Aspen/birch group	42.2	32.1	108.0	.0	182.3
All forest types	549.3	613.6	291.3	.0	1,454.2

Table 59.--Area of timberland by forest type, forest-type group, and stand-size class, Western Maine, 1971

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
White pine	63.3	25.1	15.9	.0	104.3
White pine/hemlock	50.3	12.8	.0	.0	63.1
Hemlock	38.1	24.3	.0	.0	62.4
White/red pine group	151.7	62.2	15.9	.0	229.8
Balsam fir	50.4	135.7	37.9	.0	224.0
Red spruce	12.2	38.2	.0	.0	50.4
Red spruce/balsam fir	87.4	255.4	38.7	.0	381.5
White spruce	25.8	.0	.0	.0	25.8
Northern white-cedar	11.8	.0	.0	.0	11.8
Tamarack	13.0	.0	.0	.0	13.0
Spruce/fir group	200.6	429.3	76.6	.0	706.5
Northern red oak	25.7	25.7	.0	.0	51.4
Oak/hickory group	25.7	25.7	.0	.0	51.4
Black ash/Amer. elm/red maple	.0	.0	24.2	.0	24.2
Elm/ash/red maple group	.0	.0	24.2	.0	24.2
Sugar maple/beech/yellow birch	255.0	264.7	139.4	.0	659.1
Red maple/northern hardwoods	38.1	129.4	61.9	.0	229.4
Mixed northern hardwoods	.0	51.8	37.8	.0	89.6
Northern hardwoods group	293.1	445.9	239.1	.0	978.1
Aspen	.0	64.1	.0	.0	64.1
Paper birch	13.0	25.1	13.0	.0	51.1
Gray birch	.0	.0	17.4	.0	17.4
Aspen/birch group	13.0	89.2	30.4	.0	132.6
Indeterminate	.0	.0	.0	12.2	12.2
All forest types	684.1	1,052.3	386.2	12.2	2,134.8

Table 60.--Area of timberland by forest type, forest-type group, and stand-size class, Western Maine, 1982

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
White pine	148.2	42.6	.0	.0	190.8
White pine/hemlock	31.8	53.1	.0	.0	84.9
Hemlock	42.5	21.2	.0	.0	63.7
White/red pine group	222.5	116.9	.0	.0	339.4
Balsam fir	94.8	109.3	21.4	.0	225.5
Red spruce	53.0	31.1	.0	.0	84.1
Red spruce/balsam fir	93.5	127.1	51.0	.0	271.6
White spruce	10.6	10.6	.0	.0	21.2
Black spruce	.0	.0	10.7	.0	10.7
Northern white-cedar	.0	10.6	.0	.0	10.6
Spruce/fir group	251.9	288.7	83.1	.0	623.7
White pine/no. red oak/wh. ash	10.6	.0	.0	.0	10.6
Oak/pine group	10.6	.0	.0	.0	10.6
Northern red oak	.0	31.8	.0	.0	31.8
Oak/hickory group	.0	31.8	.0	.0	31.8
Black ash/Amer. elm/red maple	.0	5.4	.0	.0	5.4
Elm/ash/red maple group	.0	5.4	.0	.0	5.4
Sugar maple/beech/yellow birch	263.0	290.2	18.6	.0	571.8
Red maple/northern hardwoods	92.8	145.8	10.8	.0	249.4
Pin cherry/reverting field	.0	10.6	8.6	.0	19.2
Mixed northern hardwoods	61.2	52.1	10.8	.0	124.1
Northern hardwoods group	417.0	498.7	48.8	.0	964.5
Aspen	.0	75.2	.0	.0	75.2
Paper birch	10.5	94.5	29.8	.0	134.8
Gray birch	.0	.0	19.4	.0	19.4
Aspen/birch group	10.5	169.7	49.2	.0	229.4
All forest types	912.5	1,111.2	181.1	.0	2,204.8

Table 61.--Number of growing-stock trees on timberland by species and diameter class, Aroostook County, Maine, 1982

(In thousands of trees)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	119,358	67,472	28,985	9,337	1,832	467	93	29	0	0	227,573
Tamarack	1,691	583	668	449	271	134	183	59	13	0	4,051
White spruce	14,717	10,251	5,087	2,687	870	290	17	0	42	0	33,961
Black spruce	29,564	10,946	3,590	633	152	0	0	29	0	0	44,914
Red spruce	47,819	35,935	20,206	10,918	5,065	1,953	698	438	152	0	123,184
Red pine	0	0	0	0	0	0	0	0	0	0	0
White pine	1,261	592	145	357	269	181	106	101	169	44	3,225
Northern white-cedar	38,933	28,351	16,809	11,372	5,198	2,249	761	410	212	0	104,295
Hemlock	2,609	2,019	1,226	1,364	420	453	151	129	170	6	8,547
Other softwoods	0	58	0	0	0	0	0	0	0	0	58
Total softwoods	255,952	156,207	76,716	37,117	14,077	5,727	2,009	1,195	758	50	549,808
Sugar maple	14,091	7,647	5,000	2,773	2,431	1,268	1,225	817	817	29	36,098
Red maple	14,249	7,543	3,451	1,592	980	471	187	146	0	0	28,619
Yellow birch	5,433	4,348	2,593	2,258	1,246	758	305	103	135	0	17,179
Paper birch	14,580	7,718	3,045	753	177	142	36	0	0	0	26,451
Gray birch	119	0	0	0	0	0	0	0	0	0	119
Beech	6,363	3,893	2,156	2,250	1,599	905	166	103	113	0	17,548
White ash	472	467	415	130	0	58	0	15	18	0	1,575
Black ash	1,790	1,602	767	433	215	89	20	43	29	0	4,988
Aspen	16,107	13,414	8,499	4,296	1,586	708	188	30	61	29	44,918
White oaks	0	0	0	0	0	0	0	0	0	0	0
Red oaks	0	0	0	40	30	0	0	0	0	0	70
Basswood	59	0	0	0	0	0	0	0	0	0	59
Elm	177	119	59	93	29	0	0	0	8	0	485
Other hardwoods	0	0	0	37	0	0	0	0	0	0	37
Total hardwoods	73,440	46,751	25,985	14,655	8,293	4,399	2,127	1,257	1,181	58	178,146
Total, all species	329,392	202,958	102,701	51,772	22,370	10,126	4,136	2,452	1,939	108	727,954

Table 62.--Number of growing-stock trees on timberland by species and diameter class, Capital Region, Maine, 1982

(In thousands of trees)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	16,175	5,249	1,262	153	29	9	0	0	0	0	22,877
Tamarack	495	627	257	236	141	79	24	0	0	0	1,859
White spruce	1,112	401	255	185	73	10	0	15	0	0	2,051
Black spruce	62	63	14	0	0	0	0	0	0	0	139
Red spruce	9,164	5,398	3,069	1,585	919	366	110	28	47	0	20,686
Red pine	0	0	14	28	17	11	0	0	0	0	70
White pine	5,852	4,631	3,370	2,783	1,727	829	580	369	458	102	20,701
Northern white-cedar	4,031	2,361	973	283	62	12	0	0	0	0	7,722
Hemlock	4,606	3,345	2,757	1,627	1,126	533	183	72	57	3	14,309
Other softwoods	0	0	0	0	0	0	0	0	0	0	0
Total softwoods	41,497	22,075	11,971	6,880	4,094	1,849	897	484	562	105	90,414
Sugar maple	2,568	1,685	792	209	74	25	37	0	4	0	5,394
Red maple	18,176	9,700	4,754	2,219	705	319	225	99	65	17	36,279
Yellow birch	1,294	944	543	194	74	58	14	0	0	0	3,121
Paper birch	7,768	4,125	1,724	667	179	68	8	0	0	0	14,539
Gray birch	2,018	373	33	14	0	12	9	0	0	0	2,459
Beech	2,183	1,697	468	272	42	28	14	0	0	0	4,704
White ash	1,869	1,303	692	213	101	75	38	0	15	0	4,306
Black ash	367	37	26	0	0	0	0	0	0	0	430
Aspen	7,730	4,924	2,404	884	329	62	9	0	0	0	16,342
White oaks	61	57	0	0	0	0	0	0	0	0	118
Red oaks	4,977	3,601	2,065	1,430	588	375	133	72	88	3	13,332
Basswood	156	227	28	42	28	26	14	0	0	0	521
Elm	170	146	28	28	14	0	0	0	0	0	386
Other hardwoods	1,506	881	548	68	45	43	0	0	5	0	3,096
Total hardwoods	50,843	29,700	14,105	6,240	2,179	1,091	501	171	177	20	105,027
Total, all species	92,340	51,775	26,076	13,120	6,273	2,940	1,398	655	739	125	195,441

Table 63.--Number of growing-stock trees on timberland by species and diameter class, Casco Bay, Maine, 1982

(In thousands of trees)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	4,245	1,891	900	166	30	0	0	0	0	0	7,232
Tamarack	272	0	53	85	30	0	0	0	0	0	440
White spruce	102	40	0	0	0	0	0	0	0	0	142
Black spruce	407	0	0	14	0	0	0	0	0	0	421
Red spruce	1,103	875	654	255	136	38	0	0	0	0	3,061
Red pine	252	208	325	253	86	27	0	0	0	0	1,151
White pine	11,479	10,143	7,151	5,001	3,414	2,759	1,367	667	676	26	42,683
Northern white-cedar	480	192	99	36	0	0	0	0	0	0	807
Hemlock	6,655	5,826	4,360	3,329	2,113	984	474	121	132	0	23,994
Other softwoods	158	322	189	153	161	39	10	0	0	0	1,032
Total softwoods	25,153	19,497	13,731	9,292	5,970	3,847	1,851	788	808	26	80,963
Sugar maple	1,179	572	183	111	132	44	19	0	5	0	2,245
Red maple	19,331	10,481	4,296	1,692	656	174	88	36	16	0	36,770
Yellow birch	1,105	826	211	123	15	0	0	15	0	0	2,295
Paper birch	6,004	3,061	1,381	367	162	32	15	0	15	0	11,037
Gray birch	1,670	393	85	59	0	0	0	0	0	0	2,207
Beech	2,301	1,538	519	361	58	40	38	7	0	0	4,862
White ash	2,618	1,062	385	118	0	26	24	30	0	0	4,263
Black ash	143	30	0	0	0	0	0	0	0	0	173
Aspen	5,372	3,938	1,622	332	132	29	0	0	6	0	11,431
White oaks	942	629	259	57	75	64	0	22	6	0	2,054
Red oaks	10,268	7,668	2,976	1,852	1,126	374	255	125	68	3	24,715
Basswood	57	28	0	0	14	0	0	0	0	0	99
Elm	58	169	0	0	0	0	0	0	0	0	227
Other hardwoods	776	312	54	88	30	15	14	0	0	0	1,289
Total hardwoods	51,824	30,707	11,971	5,160	2,400	798	453	235	116	3	103,667
Total, all species	76,977	50,204	25,702	14,452	8,370	4,645	2,304	1,023	924	29	184,630

Table 64.--Number of growing-stock trees on timberland by species and diameter class, Hancock County, Maine, 1982

(In thousands of trees)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	17,212	4,403	1,054	232	33	0	0	0	0	0	22,934
Tamarack	280	69	276	34	67	0	34	0	0	0	760
White spruce	851	262	99	66	67	0	0	0	0	0	1,345
Black spruce	1,913	918	211	34	67	0	0	0	0	0	3,143
Red spruce	12,603	10,029	6,409	3,173	1,251	630	189	51	98	0	34,433
Red pine	0	0	172	130	70	0	21	0	0	0	393
White pine	1,466	737	545	643	247	343	22	83	120	41	4,247
Northern white-cedar	4,240	3,244	1,865	1,022	185	296	0	0	0	0	10,852
Hemlock	3,331	1,616	2,010	1,015	278	300	44	117	137	0	8,848
Other softwoods	0	0	0	0	0	0	0	0	0	0	0
Total softwoods	41,896	21,278	12,641	6,349	2,265	1,569	310	251	355	41	86,955
Sugar maple	873	136	136	44	69	64	34	0	33	0	1,389
Red maple	8,042	4,757	1,954	757	266	236	101	0	0	0	16,113
Yellow birch	1,352	1,047	644	91	34	28	24	0	0	0	3,220
Paper birch	6,603	3,574	1,380	329	72	0	0	0	0	8	11,966
Gray birch	778	69	0	35	0	0	0	0	0	0	882
Beech	626	0	133	67	33	0	0	0	0	0	859
White ash	683	135	209	155	102	0	33	0	0	0	1,317
Black ash	484	0	63	82	35	0	0	0	0	0	664
Aspen	3,061	1,882	1,547	575	266	0	0	0	0	0	7,331
White oaks	0	0	0	0	0	0	0	0	0	0	0
Red oaks	138	67	133	0	33	59	22	0	0	0	452
Basswood	0	0	0	0	0	0	0	0	0	0	0
Elm	0	0	0	0	0	0	0	0	0	0	0
Other hardwoods	0	0	0	0	0	0	0	0	0	0	0
Total hardwoods	22,640	11,667	6,199	2,135	910	387	214	0	33	8	44,193
Total, all species	64,536	32,945	18,840	8,484	3,175	1,956	524	251	388	49	131,148

Table 65.--Number of growing-stock trees on timberland by species and diameter class, Penobscot County, Maine, 1982

(In thousands of trees)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	33,844	13,357	3,890	640	37	34	0	0	0	0	51,802
Tamarack	1,497	730	358	260	72	0	0	0	0	0	2,917
White spruce	2,989	1,388	507	172	130	91	33	33	0	0	5,343
Black spruce	2,058	486	317	80	34	0	0	0	0	0	2,975
Red spruce	21,229	17,432	10,664	5,044	2,319	510	60	52	26	0	57,336
Red pine	217	133	289	491	130	126	0	0	0	0	1,386
White pine	2,202	1,397	1,355	1,038	840	631	370	184	231	74	8,322
Northern white-cedar	24,147	16,492	6,948	3,068	1,371	287	54	0	0	0	52,367
Hemlock	14,457	10,370	6,104	4,268	1,754	832	172	224	147	0	38,328
Other softwoods	0	0	0	0	0	0	0	0	0	0	0
Total softwoods	102,640	61,785	30,432	15,061	6,687	2,511	689	493	404	74	220,776
Sugar maple	3,679	3,187	1,957	955	826	294	224	147	67	0	11,336
Red maple	12,227	8,106	4,036	2,219	965	239	156	33	90	0	28,071
Yellow birch	3,891	2,112	1,423	484	344	220	33	16	48	0	8,571
Paper birch	5,429	4,108	2,560	836	205	93	0	17	13	0	13,261
Gray birch	2,650	570	0	0	0	0	0	0	0	0	3,220
Beech	8,964	4,853	1,523	1,064	573	99	21	0	0	0	17,097
White ash	1,583	807	733	486	195	67	0	0	27	0	3,898
Black ash	1,395	512	201	285	134	0	0	49	0	0	2,576
Aspen	5,232	5,421	5,075	2,509	1,290	179	113	0	12	0	19,831
White oaks	326	196	0	0	0	0	0	0	0	0	522
Red oaks	134	0	67	43	0	100	33	0	0	0	377
Basswood	200	201	0	132	71	57	53	0	0	0	714
Elm	151	268	0	33	132	33	143	19	77	33	889
Other hardwoods	270	67	67	33	33	0	0	0	0	0	470
Total hardwoods	46,131	30,408	17,642	9,079	4,768	1,381	776	281	334	33	110,833
Total, all species	148,771	92,193	48,074	24,140	11,455	3,892	1,465	774	738	107	331,609

Table 66.--Number of growing-stock trees on timberland by species and diameter class, Piscataquis County, Maine, 1982

(In thousands of trees)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	60,354	36,246	13,928	3,681	697	134	0	0	0	0	115,040
Tamarack	1,719	294	365	170	37	0	0	0	0	0	2,585
White spruce	5,983	3,247	1,904	758	233	36	62	17	0	0	12,240
Black spruce	5,144	2,007	1,442	748	476	101	29	0	0	0	9,947
Red spruce	64,792	39,190	19,452	8,346	5,151	1,929	810	352	120	0	140,142
Red pine	0	0	0	0	0	0	0	0	0	0	0
White pine	2,922	1,417	1,275	884	309	455	349	131	479	164	8,385
Northern white-cedar	6,363	7,539	5,913	3,807	2,309	1,305	383	428	134	0	28,181
Hemlock	3,321	2,366	1,409	733	340	202	57	103	12	0	8,543
Other softwoods	0	0	0	0	0	0	0	0	0	0	0
Total softwoods	150,598	92,306	45,688	19,127	9,552	4,162	1,690	1,031	745	164	325,063
Sugar maple	4,131	4,204	2,918	2,247	1,349	661	655	393	365	7	16,930
Red maple	13,258	8,511	4,944	2,759	919	542	316	74	30	51	31,404
Yellow birch	3,573	3,387	2,969	1,686	833	667	345	167	174	7	13,808
Paper birch	8,412	3,892	2,104	814	363	180	37	0	13	0	15,815
Gray birch	527	73	74	0	0	0	0	0	0	0	674
Beech	5,372	2,865	1,713	1,248	616	203	71	0	0	0	12,088
White ash	775	939	470	177	121	37	24	17	0	0	2,560
Black ash	1,594	1,215	404	122	121	31	29	0	0	0	3,516
Aspen	2,312	3,790	3,174	1,334	814	354	115	110	34	0	12,037
White oaks	0	0	0	0	0	0	0	0	0	0	0
Red oaks	0	0	0	0	36	0	23	37	37	0	133
Basswood	0	183	74	99	33	0	0	0	0	0	389
Elm	0	0	73	0	0	0	0	0	0	0	73
Other hardwoods	0	0	0	60	0	0	0	0	0	0	60
Total hardwoods	39,954	29,059	18,917	10,546	5,205	2,675	1,615	798	653	65	109,487
Total, all species	190,552	121,365	64,605	29,673	14,757	6,837	3,305	1,829	1,398	229	434,550

Table 67.--Number of growing-stock trees on timberland by species and diameter class, Somerset County, Maine, 1982

(In thousands of trees)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	65,002	45,604	18,279	4,350	1,217	382	0	0	0	0	134,834
Tamarack	361	0	134	36	0	36	0	0	0	0	567
White spruce	7,221	2,580	1,295	402	184	72	0	0	0	0	11,754
Black spruce	8,262	3,155	876	116	72	25	0	0	0	0	12,506
Red spruce	44,341	30,733	14,871	6,725	2,957	976	392	108	96	8	101,207
Red pine	216	524	376	187	0	0	21	0	0	0	1,324
White pine	2,601	2,195	1,370	946	678	300	341	231	175	12	8,849
Northern white-cedar	5,026	8,606	5,729	3,610	2,060	773	289	90	78	0	26,261
Hemlock	4,602	3,460	1,703	886	546	501	221	17	149	8	12,093
Other softwoods	0	0	0	0	0	0	0	0	0	0	0
Total softwoods	137,632	96,857	44,633	17,258	7,714	3,065	1,264	446	498	28	309,395
Sugar maple	8,196	7,065	4,359	3,517	1,952	1,047	571	362	407	36	27,512
Red maple	15,445	9,066	5,866	2,152	1,311	503	343	217	31	0	34,934
Yellow birch	6,216	5,640	3,251	1,911	1,335	894	487	161	336	8	20,239
Paper birch	18,027	8,409	4,136	2,035	579	153	59	0	11	0	33,409
Gray birch	2,731	630	82	37	36	0	0	0	0	0	3,516
Beech	6,116	2,750	1,375	1,204	374	276	114	0	36	0	12,245
White ash	1,034	1,540	999	424	41	0	22	0	0	0	4,060
Black ash	1,216	780	354	181	37	0	0	0	0	0	2,568
Aspen	7,450	5,640	2,496	1,216	579	217	130	109	0	0	17,837
White oaks	0	0	0	0	0	0	0	0	0	0	0
Red oaks	440	72	238	0	42	0	0	0	48	0	840
Basswood	0	0	72	36	0	0	36	0	0	0	144
Elm	407	0	133	0	109	0	0	0	0	0	649
Other hardwoods	487	234	0	55	0	0	0	0	0	0	776
Total hardwoods	67,765	41,826	23,361	12,768	6,395	3,090	1,762	849	869	44	158,729
Total, all species	205,397	138,683	67,994	30,026	14,109	6,155	3,026	1,295	1,367	72	468,124

Table 68.--Number of growing-stock trees on timberland by species and diameter class, Washington County, Maine, 1982

(In thousands of trees)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	21,418	7,845	2,841	425	38	38	0	0	0	0	32,605
Tamarack	529	619	231	287	0	38	24	0	12	0	1,740
White spruce	5,527	2,567	1,094	164	75	0	0	0	0	0	9,427
Black spruce	5,640	1,044	357	138	0	0	0	0	0	0	7,179
Red spruce	23,309	15,997	8,509	4,269	1,613	617	340	38	49	0	54,741
Red pine	76	0	37	38	115	0	0	0	0	0	266
White pine	835	226	665	697	376	285	123	136	106	15	3,464
Northern white-cedar	9,782	5,398	3,738	1,548	696	98	0	39	0	0	21,299
Hemlock	6,216	5,462	3,693	2,095	778	315	121	56	9	0	18,745
Other softwoods	0	0	0	0	0	0	0	0	0	0	0
Total softwoods	73,332	39,158	21,165	9,661	3,691	1,391	608	269	176	15	149,466
Sugar maple	1,611	1,160	294	283	84	37	69	0	118	7	3,663
Red maple	11,483	7,079	2,749	1,596	959	163	20	59	15	0	24,123
Yellow birch	2,025	1,064	760	247	190	68	26	0	11	0	4,391
Paper birch	9,730	5,209	1,491	841	306	75	0	0	0	0	17,652
Gray birch	682	198	0	0	0	0	0	0	0	0	880
Beech	1,994	1,002	226	203	201	113	0	0	0	0	3,739
White ash	75	332	150	38	0	28	0	0	0	0	623
Black ash	555	546	223	75	38	38	0	0	0	0	1,475
Aspen	6,222	2,097	1,080	1,239	631	309	62	95	0	0	11,735
White oaks	0	0	0	0	0	0	0	0	0	0	0
Red oaks	230	508	394	162	0	0	0	0	0	0	1,294
Basswood	0	0	0	0	0	0	0	0	0	0	0
Elm	0	0	0	0	0	0	0	0	0	0	0
Other hardwoods	0	0	0	0	0	0	0	0	0	0	0
Total hardwoods	34,607	19,195	7,367	4,684	2,409	831	177	154	144	7	69,575
Total, all species	107,939	58,353	28,532	14,345	6,100	2,222	785	423	320	22	219,041

Table 69.--Number of growing-stock trees on timberland by species and diameter class, Western Maine, 1982

(In thousands of trees)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	44,557	26,407	11,312	4,808	1,350	215	24	0	0	0	88,673
Tamarack	74	0	139	0	0	0	0	0	0	0	213
White spruce	1,916	2,323	980	272	144	68	0	0	0	0	5,703
Black spruce	767	1,374	810	37	146	0	0	0	0	0	3,134
Red spruce	24,168	16,541	8,012	3,581	1,256	560	307	55	41	8	54,529
Red pine	278	148	74	74	121	133	25	19	0	0	872
White pine	7,638	5,770	4,035	2,313	2,029	922	750	202	138	46	23,843
Northern white-cedar	1,341	634	292	218	147	65	84	19	36	0	2,836
Hemlock	6,040	4,261	2,318	1,722	1,047	591	37	54	0	0	16,070
Other softwoods	70	0	0	0	0	0	0	0	0	0	70
Total softwoods	86,849	57,458	27,972	13,025	6,240	2,554	1,227	349	215	54	195,943
Sugar maple	6,515	5,366	2,816	1,777	716	346	104	111	93	0	17,844
Red maple	22,616	12,840	7,141	3,309	1,014	384	279	90	125	0	47,798
Yellow birch	5,980	5,894	5,251	3,273	1,633	1,057	385	315	432	13	24,233
Paper birch	18,988	16,248	7,178	2,665	782	382	200	35	0	0	46,478
Gray birch	2,392	573	346	72	35	29	0	0	0	0	3,447
Beech	7,038	4,172	2,627	893	452	201	60	0	0	0	15,443
White ash	2,502	2,522	1,382	655	331	90	60	37	46	0	7,625
Black ash	481	260	70	54	0	0	0	0	0	0	865
Aspen	8,452	7,229	3,891	1,561	332	148	21	0	0	0	21,634
White oaks	354	74	0	0	0	0	0	0	0	0	428
Red oaks	3,432	1,697	947	565	336	162	23	37	16	6	7,221
Basswood	168	0	71	36	0	0	0	38	0	0	313
Elm	363	164	0	0	35	36	0	0	0	0	598
Other hardwoods	583	279	74	0	0	0	0	0	0	0	936
Total hardwoods	79,864	57,318	31,794	14,860	5,666	2,835	1,132	663	712	19	194,863
Total, all species	166,713	114,776	59,766	27,885	11,906	5,389	2,359	1,012	927	73	390,806

Table 70.--Net green weight of all live trees on timberland by species and diameter class, Aroostook County, Maine, 1982

(In thousands of tons)

Species	Diameter class (inches at breast height)										All classes
	1.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21+	
Balsam fir	13,931.9	18,453.0	19,271.7	13,553.1	6,673.4	1,978.1	673.7	190.2	75.9	.0	74,801.0
Tamarack	213.6	294.5	205.6	346.5	272.0	223.6	154.7	273.6	117.9	29.6	2,131.6
White spruce	1,571.0	2,219.7	3,012.5	2,670.9	2,005.9	975.0	470.5	123.6	.0	133.3	13,182.4
Black spruce	1,745.4	4,449.8	3,221.1	1,750.6	460.0	153.7	.0	.0	69.2	.0	11,849.8
Red spruce	3,593.3	7,559.5	10,817.2	10,067.7	8,323.8	5,273.1	2,835.7	1,378.9	1,042.5	510.0	51,401.7
Red pine	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
White pine	13.2	210.4	165.7	117.0	323.6	293.3	290.2	250.1	303.5	1,101.2	3,068.2
No. white-cedar	4,517.5	4,440.6	5,612.1	5,214.5	4,804.1	3,224.5	1,771.8	738.4	434.9	484.6	31,243.0
Hemlock	597.0	418.6	645.1	641.6	1,000.0	497.0	631.1	274.7	345.0	697.8	5,747.9
Other softwoods	.0	.0	18.3	.0	.0	.0	.0	.0	.0	.0	18.3
Total softwoods	26,182.9	38,046.1	42,969.3	34,361.9	23,862.8	12,618.3	6,827.7	3,229.5	2,388.9	2,956.5	193,443.9
Sugar maple	2,919.6	3,017.1	3,256.5	3,269.7	2,803.2	3,047.3	2,534.4	2,825.1	2,887.3	4,283.0	30,843.2
Soft maples	3,823.1	2,868.6	2,757.3	2,468.5	1,704.8	1,463.1	934.0	596.5	464.5	73.6	17,154.0
Yellow birch	947.4	1,240.5	1,642.1	2,012.5	2,196.1	1,641.8	1,382.8	1,013.9	524.1	952.0	13,553.2
Paper birch	2,646.1	2,638.4	2,892.7	2,236.7	826.7	352.7	278.2	96.8	.0	35.5	12,003.8
Gray birch	163.2	27.6	.0	.0	.0	.0	.0	.0	.0	.0	190.8
Beech	2,058.6	1,895.6	2,228.5	2,454.9	3,375.1	3,173.6	2,646.9	1,052.1	513.2	596.2	19,994.7
White ash	356.9	85.4	175.8	272.3	121.0	.0	106.5	.0	118.2	84.8	1,320.9
Black ash	346.4	455.9	581.5	474.0	436.4	258.7	210.3	32.6	111.7	77.3	2,984.8
Aspen	1,595.8	2,714.9	4,393.0	4,926.4	3,575.9	2,144.0	1,092.6	454.2	122.2	446.4	21,465.4
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	.0	.0	.0	.0	27.3	28.5	.0	.0	.0	.0	55.8
Basswood	11.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	16.5
Elm	110.3	121.8	67.7	66.4	70.3	28.2	.0	.0	.0	34.8	499.5
Other comm. hardwoods	.0	13.4	.0	.0	33.7	.0	.0	.0	.0	.0	47.1
Noncomm. hardwoods	2,108.7	347.5	189.4	165.6	.0	66.4	27.4	.0	.0	.0	2,905.0
Total hardwoods	17,087.1	15,432.2	18,184.5	18,347.0	15,170.5	12,204.3	9,213.1	6,071.2	4,741.2	6,583.6	123,034.7
Total, all species	43,270.0	53,478.3	61,153.8	52,708.9	39,033.3	24,822.6	16,040.8	9,300.7	7,130.1	9,540.1	316,478.6

Table 71.--Net green weight of all live trees on timberland by species and diameter class, Capital Region, Maine, 1982

(In thousands of tons)

Species	Diameter class (inches at breast height)										All classes
	1.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21+	
Balsam fir	4,626.4	2,302.3	1,424.6	590.8	135.4	40.2	11.8	.0	.0	.0	9,131.5
Tamarack	29.3	66.3	152.7	117.8	148.6	130.9	98.1	34.6	.0	.0	778.3
White spruce	114.3	192.8	162.3	149.9	140.6	77.9	16.0	.0	39.8	.0	893.6
Black spruce	.0	13.2	22.4	7.8	.0	.0	.0	.0	.0	.0	43.4
Red spruce	681.0	1,463.1	1,611.5	1,549.8	1,198.5	996.2	552.6	226.3	81.1	195.7	8,555.8
Red pine	.0	.0	.0	8.3	26.6	35.4	20.7	.0	.0	.0	91.0
White pine	786.2	1,077.5	1,517.2	2,049.4	2,491.1	2,150.1	1,466.5	1,384.4	1,164.7	3,537.0	17,624.1
No. white-cedar	447.4	488.3	486.6	315.5	123.5	33.8	14.3	.0	.0	.0	1,909.4
Hemlock	706.7	764.1	1,036.2	1,497.2	1,206.4	1,217.0	828.0	333.2	255.4	267.0	8,111.2
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	7,391.3	6,367.6	6,413.5	6,286.5	5,470.7	4,681.5	3,008.0	1,978.5	1,541.0	3,999.7	47,138.3
Sugar maple	710.6	489.9	608.8	449.2	208.0	93.3	42.0	85.5	30.3	96.8	2,814.4
Soft maples	2,876.2	3,042.7	3,363.0	2,662.4	1,997.8	1,026.1	611.1	587.2	476.5	473.4	17,116.4
Yellow birch	580.8	281.1	363.0	347.4	223.0	201.6	91.8	30.6	.0	27.6	2,146.9
Paper birch	1,330.4	1,390.7	1,523.2	1,106.2	673.8	351.9	134.7	25.1	24.4	27.2	6,587.6
Gray birch	1,542.7	970.8	276.4	23.9	11.1	.0	29.8	16.7	.0	.0	2,871.4
Beech	1,354.8	673.4	820.1	554.0	419.9	137.0	92.4	60.1	13.9	65.2	4,190.8
White ash	210.8	329.3	411.9	354.7	161.9	113.8	130.0	74.6	.0	87.2	1,874.2
Black ash	4.9	70.6	23.3	13.0	.0	11.1	.0	19.2	.0	.0	142.1
Aspen	889.5	1,295.7	1,591.1	1,264.7	783.2	416.6	98.9	19.2	.0	.0	6,358.9
White oaks	21.1	16.1	19.3	.0	.0	.0	.0	26.5	.0	.0	83.0
Red oaks	689.9	795.4	1,132.0	1,048.9	1,215.4	659.8	588.3	284.5	262.6	456.8	7,133.6
Basswood	49.9	15.3	49.5	15.9	18.8	17.4	23.0	10.7	.0	2.5	203.0
Elm	101.4	41.3	70.2	64.0	41.0	50.1	.0	.0	.0	.0	368.0
Other comm. hardwoods	423.7	298.5	318.5	296.1	86.0	45.0	66.9	.0	.0	20.1	1,554.8
Noncomm. hardwoods	799.3	251.0	234.0	58.2	58.8	17.5	40.4	12.1	30.4	25.1	1,526.8
Total hardwoods	11,586.0	9,961.8	10,804.3	8,258.6	5,898.7	3,141.2	1,949.3	1,252.0	838.1	1,281.9	54,971.9
Total, all species	18,977.3	16,329.4	17,217.8	14,545.1	11,369.4	7,822.7	4,957.3	3,230.5	2,379.1	5,281.6	102,110.2

Table 72.--Net green weight of all live trees on timberland by species and diameter class, Casco Bay, Maine, 1982

(In thousands of tons)

Species	Diameter class (inches at breast height)										All classes
	1.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21+	
Balsam fir	1,299.3	679.8	514.8	418.9	107.5	29.5	.0	.0	.0	.0	3,049.8
Tamarack	55.5	32.2	.0	25.3	47.2	40.1	.0	.0	.0	.0	200.3
White spruce	.0	16.1	13.4	.0	.0	.0	.0	.0	.0	.0	29.5
Black spruce	.0	62.1	.0	.0	12.2	.0	.0	.0	.0	.0	74.3
Red spruce	348.8	235.3	278.6	320.1	200.0	145.5	52.5	.0	.0	.0	1,580.8
Red pine	111.8	49.2	84.6	186.5	218.3	107.7	46.9	.0	.0	.0	805.0
White pine	2,733.0	2,522.5	3,536.1	4,352.9	4,483.3	4,277.7	4,660.6	3,210.7	2,149.5	4,911.2	36,837.5
No. white-cedar	.0	46.0	42.2	27.8	11.6	.0	.0	.0	.0	.0	127.6
Hemlock	1,027.1	1,310.0	1,839.4	2,179.5	2,512.0	2,230.3	1,450.5	938.3	339.6	507.3	14,334.0
Other softwoods	28.5	22.4	79.1	65.0	56.3	79.9	30.4	6.9	.0	.0	368.5
Total softwoods	5,604.0	4,975.6	6,388.2	7,576.0	7,648.4	6,910.7	6,240.9	4,155.9	2,489.1	5,418.5	57,407.3
Sugar maple	524.7	243.8	201.2	134.9	84.0	165.2	75.7	56.0	93.8	84.9	1,664.2
Soft maples	4,528.3	3,938.3	3,706.5	2,543.9	1,688.5	948.9	454.0	351.0	148.2	294.5	18,602.1
Yellow birch	155.5	233.8	306.1	164.2	129.8	67.8	16.7	21.3	43.8	8.9	1,147.9
Paper birch	1,241.9	991.4	1,052.4	894.3	349.1	223.9	120.4	53.6	.0	60.4	4,987.4
Gray birch	2,126.8	540.1	178.6	44.8	46.3	.0	15.2	.0	.0	.0	2,951.8
Beech	1,126.2	646.2	768.4	379.9	401.3	201.6	129.2	115.9	45.1	74.1	3,887.9
White ash	604.9	443.3	326.8	204.6	106.1	13.6	38.5	48.7	63.0	.0	1,849.5
Black ash	27.4	35.2	31.4	.0	.0	.0	.0	.0	.0	.0	94.0
Aspen	508.7	980.0	1,257.5	881.2	263.5	156.2	53.5	.0	.0	21.9	4,122.5
White oaks	547.0	221.5	214.8	136.0	47.2	88.2	116.7	29.8	93.8	183.4	1,678.4
Red oaks	1,786.2	1,748.2	2,440.8	1,559.7	1,505.6	1,330.0	594.7	563.4	383.5	357.1	12,269.2
Basswood	86.9	13.5	4.0	.0	.0	6.0	.0	.0	.0	.0	110.4
Elm	53.7	11.9	56.6	.0	10.0	4.5	.0	.0	.0	.0	136.7
Other comm. hardwoods	315.0	207.1	139.4	39.7	69.2	60.2	25.8	23.9	.0	.0	880.3
Noncomm. hardwoods	545.6	131.6	62.6	53.5	.0	.0	.0	.0	.0	21.2	814.5
Total hardwoods	14,178.8	10,385.9	10,747.1	7,036.7	4,700.6	3,266.1	1,640.4	1,263.6	871.2	1,106.4	55,196.8
Total, all species	19,782.8	15,361.5	17,135.3	14,612.7	12,349.0	10,176.8	7,881.3	5,419.5	3,360.3	6,524.9	112,604.1

Table 73.--Net green weight of all live trees on timberland by species and diameter class, Hancock County, Maine 1982

(In thousands of tons)

Species	Diameter class (inches at breast height)										All classes
	1.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21+	
Balsam fir	3,735.6	2,683.6	1,412.4	538.8	189.3	31.7	.0	.0	.0	.0	8,591.4
Tamarack	.0	55.6	32.0	125.1	20.6	59.7	.0	49.6	.0	.0	342.6
White spruce	5.6	110.8	89.0	61.9	52.6	75.6	.0	.0	.0	.0	395.5
Black spruce	483.7	301.1	244.6	108.0	25.3	69.0	.0	.0	.0	.0	1,231.7
Red spruce	2,615.9	2,152.3	3,125.6	3,190.9	2,567.3	1,370.2	974.7	483.3	130.1	342.7	16,953.0
Red pine	.0	.0	.0	107.7	113.8	85.5	.0	51.0	.0	.0	358.0
White pine	264.8	242.3	258.1	316.4	582.4	257.1	586.0	74.1	281.1	1,233.8	4,096.1
No. white-cedar	629.6	597.1	714.9	525.6	390.1	82.4	184.8	.0	.0	.0	3,124.5
Hemlock	468.2	668.4	574.9	962.8	783.2	282.0	386.2	76.3	314.0	446.7	4,962.7
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	8,203.4	6,811.2	6,451.5	5,937.2	4,724.6	2,313.2	2,131.7	734.3	725.2	2,023.2	40,055.5
Sugar maple	321.0	193.8	43.3	142.5	61.1	110.1	200.3	59.7	.0	231.1	1,362.9
Soft maples	1,270.4	1,767.2	1,877.5	1,169.1	805.0	444.2	398.4	312.3	.0	237.2	8,281.3
Yellow birch	405.9	322.6	484.9	472.8	211.8	164.5	181.8	119.4	41.3	190.9	2,595.9
Paper birch	419.3	1,445.5	1,403.2	866.5	364.4	92.9	.0	.0	112.8	80.4	4,785.0
Gray birch	219.5	218.6	39.1	.0	27.2	.0	.0	.0	.0	.0	504.4
Beech	1,187.1	640.1	171.3	172.7	93.3	115.2	22.1	45.8	19.2	47.8	2,514.6
White ash	294.4	110.6	66.8	102.1	128.7	140.7	19.1	63.1	27.5	.0	953.0
Black ash	128.3	91.0	.0	34.8	104.0	36.5	42.9	.0	.0	.0	437.5
Aspen	452.8	506.3	748.0	963.3	473.4	347.1	.0	41.4	30.5	.0	3,562.8
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	38.3	44.7	62.1	74.8	.0	37.7	102.3	41.9	.0	.0	401.8
Basswood	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Elm	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Other comm. hardwoods	224.0	22.5	34.4	.0	.0	.0	.0	.0	.0	.0	280.9
Noncomm. hardwoods	428.1	78.9	60.4	8.5	.0	.0	.0	.0	.0	.0	575.9
Total hardwoods	5,389.1	5,441.8	4,991.0	4,007.1	2,268.9	1,488.9	966.9	683.6	231.3	787.4	26,256.0
Total, all species	13,592.5	12,253.0	11,442.5	9,944.3	6,993.5	3,802.1	3,098.6	1,417.9	956.5	2,810.6	66,311.5

Table 74.--Net green weight of all live trees on timberland by species and diameter class, Penobscot County, Maine 1982

(In thousands of tons)

Species	Diameter class (inches at breast height)										All classes
	1.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21+	
Balsam fir	4,689.6	5,736.3	4,125.3	1,853.6	423.9	56.3	46.6	.0	.0	.0	16,931.6
Tamarack	344.1	264.1	261.4	205.6	188.2	83.3	.0	.0	.0	.0	1,346.7
White spruce	588.3	491.5	388.0	231.6	124.6	146.7	127.9	106.7	88.4	.0	2,293.7
Black spruce	203.4	289.3	149.7	146.2	60.0	32.1	.0	.0	.0	.0	880.7
Red spruce	2,058.3	3,519.1	5,339.5	5,344.9	3,795.5	2,466.6	744.4	118.9	114.1	86.8	23,588.1
Red pine	18.6	47.1	74.2	178.7	471.6	177.2	226.7	.0	.0	22.4	1,216.5
White pine	608.3	400.2	464.4	786.8	889.1	1,117.2	1,045.9	1,034.7	553.3	2,728.0	9,627.9
No. white-cedar	2,296.1	3,163.0	3,410.6	2,123.0	1,426.7	720.2	176.8	66.2	9.1	6.9	13,398.6
Hemlock	1,615.5	2,475.5	3,510.6	3,064.8	3,147.4	1,932.7	1,175.8	331.0	512.9	468.3	18,234.5
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	12,422.2	16,386.1	17,723.7	13,935.2	10,527.0	6,732.3	3,544.1	1,657.5	1,277.8	3,312.4	87,518.3
Sugar maple	721.4	918.3	1,362.1	1,248.9	964.2	1,103.4	605.2	650.7	430.7	345.0	8,349.9
Soft maples	2,633.0	2,920.2	3,294.0	2,628.8	2,173.0	1,273.2	447.8	460.7	175.8	331.8	16,338.3
Yellow birch	158.9	878.3	926.3	1,014.2	659.6	462.3	416.9	233.2	96.6	252.9	5,099.2
Paper birch	1,192.8	1,155.1	1,690.3	1,760.1	866.0	458.2	296.9	103.6	61.6	141.6	7,726.2
Gray birch	1,431.0	910.8	237.4	.0	.0	.0	.0	.0	.0	.0	2,579.2
Beech	2,878.5	2,590.4	2,714.4	1,888.8	1,598.3	1,023.4	322.1	220.0	61.0	9.9	13,306.8
White ash	.0	316.3	300.9	461.3	423.9	295.6	109.5	.0	13.5	90.7	2,011.7
Black ash	318.1	583.1	363.2	292.3	224.2	237.2	.0	.0	137.3	.0	2,155.4
Aspen	372.3	1,087.3	2,213.8	3,077.1	2,203.3	1,691.5	292.3	255.4	.0	54.4	11,247.4
White oaks	.0	62.7	50.9	.0	.0	.0	.0	.0	.0	.0	113.6
Red oaks	11.6	36.5	15.4	29.3	99.7	.0	188.5	75.1	.0	.0	456.1
Basswood	.0	31.0	35.9	.0	46.1	34.0	37.6	41.6	.0	.0	226.2
Elm	46.2	108.9	125.8	.0	28.7	165.3	45.5	275.0	41.8	626.4	1,463.6
Other comm. hardwoods	22.8	135.7	32.7	40.5	54.3	32.5	.0	.0	.0	.0	318.5
Noncomm. hardwoods	1,175.8	335.6	184.8	50.8	31.2	.0	.0	.0	.0	.0	1,778.2
Total hardwoods	10,962.4	12,070.2	13,547.9	12,492.1	9,372.5	6,776.6	2,762.3	2,315.3	1,018.3	1,852.7	73,170.3
Total, all species	23,384.6	28,456.3	31,271.6	26,427.3	19,899.5	13,508.9	6,306.4	3,972.8	2,296.1	5,165.1	160,688.6

Table 75.--Net green weight of all live trees on timberland by species and diameter class, Piscataquis County, Maine, 1982

(In thousands of tons)

Species	Diameter class (inches at breast height)										All classes
	1.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21+	
Balsam fir	8,434.4	9,592.3	10,238.0	6,400.3	2,458.4	729.0	240.0	.0	.0	.0	38,092.4
Tamarack	332.7	244.1	62.0	182.1	96.5	62.9	.0	.0	.0	.0	980.3
White spruce	1,073.7	925.3	913.1	916.4	550.7	231.9	54.4	189.7	38.6	.0	4,893.8
Black spruce	291.7	831.0	728.8	675.2	593.1	494.3	156.3	50.7	.0	.0	3,821.1
Red spruce	6,044.9	10,208.6	11,631.5	9,706.5	6,499.9	5,609.6	2,879.6	1,595.4	812.7	450.3	55,439.0
Red pine	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
White pine	38.1	408.5	401.6	697.0	706.8	330.5	728.0	811.5	378.3	3,504.5	8,004.8
No. white-cedar	1,177.1	874.8	1,792.1	1,967.6	1,799.8	1,236.7	952.5	352.3	423.0	254.6	10,830.5
Hemlock	334.6	538.9	665.5	833.4	672.2	391.3	484.5	274.9	289.0	342.3	4,826.6
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	17,727.2	23,623.5	26,432.6	21,378.5	13,377.4	9,086.2	5,495.3	3,274.5	1,941.6	4,551.7	126,888.5
Sugar maple	430.0	810.6	1,525.7	1,729.9	1,965.1	1,998.0	1,121.8	1,496.7	1,102.2	1,700.1	13,880.1
Soft maples	863.4	2,310.4	2,949.2	2,943.2	2,443.3	1,388.6	962.2	715.9	296.6	537.0	15,409.8
Yellow birch	1,449.5	749.4	1,284.9	1,820.4	1,816.6	1,174.3	1,185.6	788.5	509.5	944.6	11,723.3
Paper birch	1,069.3	1,517.7	1,496.7	1,431.7	886.2	537.7	384.8	114.8	.0	63.7	7,502.6
Gray birch	191.8	92.7	19.5	39.0	31.5	39.7	.0	.0	.0	.0	414.2
Beech	1,570.4	1,363.6	1,775.8	2,470.4	1,693.1	1,552.7	756.5	427.0	23.5	24.7	11,657.7
White ash	33.6	113.7	293.0	265.7	140.4	125.4	64.5	46.2	42.2	.0	1,124.7
Black ash	162.1	276.4	423.1	196.4	97.0	155.4	44.8	54.6	.0	.0	1,409.8
Aspen	714.4	366.8	1,274.1	1,684.7	1,086.0	998.6	598.5	303.4	324.2	149.0	7,499.7
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	.0	.0	.0	.0	.0	38.5	.0	40.0	110.8	158.0	347.3
Basswood	.0	2.2	34.3	18.2	37.0	18.2	.0	.0	.0	.0	109.9
Elm	7.6	.0	35.7	41.5	.0	.0	.0	.0	.0	.0	84.8
Other comm. hardwoods	15.8	.0	27.1	.0	37.1	.0	.0	.0	.0	.0	80.0
Noncomm. hardwoods	932.6	525.7	236.0	.0	21.8	12.7	.0	.0	.0	.0	1,728.8
Total hardwoods	7,440.5	8,129.2	11,375.1	12,641.1	10,255.1	8,039.8	5,118.7	3,987.1	2,409.0	3,577.1	72,972.7
Total, all species	25,167.7	31,752.7	37,807.7	34,019.6	23,632.5	17,126.0	10,614.0	7,261.6	4,350.6	8,128.8	199,861.2

Table 76.--Net green weight of all live trees on timberland by species and diameter class, Somerset County, Maine, 1982

(In thousands of tons)

Species	Diameter class (inches at breast height)										All classes
	1.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21+	
Balsam fir	8,903.6	10,093.4	12,985.5	8,373.1	3,091.3	1,321.2	564.1	.0	.0	42.6	45,374.8
Tamarack	12.9	48.9	.0	57.4	25.3	.0	41.1	.0	.0	.0	185.6
White spruce	913.4	1,038.4	783.1	650.5	308.8	224.1	111.7	.0	.0	.0	4,030.0
Black spruce	770.4	1,237.0	875.8	390.8	87.3	70.8	41.2	.0	.0	.0	3,473.3
Red spruce	4,341.6	7,088.2	8,997.7	7,421.4	5,069.8	3,200.6	1,387.0	764.4	252.5	315.1	38,838.3
Red pine	.0	60.7	230.9	309.7	239.4	.0	55.7	53.2	.0	.0	949.6
White pine	343.9	420.5	730.8	733.0	764.0	798.5	506.8	659.2	682.9	887.3	6,526.9
No. white-cedar	404.1	786.8	1,633.2	1,676.2	1,541.3	1,157.9	581.9	328.6	127.6	127.8	8,365.4
Hemlock	303.5	788.6	946.7	804.1	632.4	637.1	717.8	405.4	43.3	530.4	5,809.3
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	15,993.4	21,562.5	27,183.7	20,416.2	11,759.6	7,410.2	4,007.3	2,210.8	1,106.3	1,903.2	113,553.2
Sugar maple	1,418.4	1,633.8	2,591.6	2,651.5	3,193.4	2,515.3	2,241.4	1,374.1	1,508.1	2,712.9	21,840.5
Soft maples	2,861.4	2,845.0	3,545.6	3,373.3	1,910.1	1,512.0	879.5	670.8	682.9	231.0	18,511.6
Yellow birch	1,442.2	1,167.2	2,069.7	1,991.5	1,874.1	2,010.6	1,836.1	1,356.9	660.5	2,080.8	16,489.6
Paper birch	977.3	3,111.3	3,271.6	2,759.9	2,049.1	974.7	396.9	203.8	.0	75.0	13,819.6
Gray birch	354.2	576.4	207.3	37.1	51.1	39.3	.0	.0	.0	.0	1,265.4
Beech	1,273.0	1,508.1	1,618.1	1,627.5	1,656.5	1,021.8	812.3	506.0	.0	242.7	10,266.0
White ash	277.1	197.7	516.8	500.4	340.9	40.9	.0	46.1	.0	.0	1,919.9
Black ash	601.1	238.1	258.4	228.3	225.2	37.7	.0	.0	.0	.0	1,588.8
Aspen	133.9	1,227.9	1,717.3	1,301.2	1,097.6	748.3	350.7	343.7	312.2	.0	7,232.8
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	.0	62.4	25.5	112.0	.0	41.0	.0	.0	.0	160.2	401.1
Basswood	12.3	.0	10.9	16.2	13.9	.0	.0	40.6	.0	.0	93.9
Elm	187.1	50.5	.0	75.2	.0	126.4	.0	.0	.0	.0	439.2
Other comm. hardwoods	256.8	73.8	78.9	.0	37.7	20.8	41.1	.0	21.6	62.5	593.2
Noncomm. hardwoods	2,137.7	650.5	410.7	19.9	23.8	63.4	26.9	.0	.0	.0	3,332.9
Total hardwoods	11,932.5	13,342.7	16,322.4	14,694.0	12,473.4	9,152.2	6,584.9	4,542.0	3,185.3	5,565.1	97,794.5
Total, all species	27,925.9	34,905.2	43,506.1	35,110.2	24,233.0	16,562.4	10,592.2	6,752.8	4,291.6	7,468.3	211,347.7

Table 77.--Net green weight of all live trees on timberland by species and diameter class, Washington County, Maine, 1982

(In thousands of tons)

Species	Diameter class (inches at breast height)										All classes
	1.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21+	
Balsam fir	6,382.8	5,221.4	3,171.0	1,415.3	300.7	35.6	62.3	.0	.0	.0	16,589.1
Tamarack	180.1	101.6	174.2	88.3	169.1	14.8	44.3	34.6	.0	31.4	838.4
White spruce	464.7	791.4	764.7	539.8	114.0	87.4	.0	43.5	.0	.0	2,805.5
Black spruce	1,501.1	820.9	310.0	155.8	103.4	.0	.0	.0	.0	.0	2,891.2
Red spruce	3,295.1	4,145.4	4,919.9	4,244.0	3,196.9	1,809.4	877.4	772.1	128.9	206.7	23,595.8
Red pine	.0	14.3	.0	21.2	69.0	154.2	.0	.0	.0	.0	258.7
White pine	134.8	169.2	64.1	328.1	528.7	430.6	474.1	264.8	345.8	820.7	3,560.9
No. white-cedar	1,668.6	1,205.1	1,119.5	1,077.2	603.2	374.0	117.4	10.6	44.7	9.2	6,229.5
Hemlock	1,148.8	1,312.1	1,672.4	1,851.1	1,541.1	825.3	467.3	225.1	132.9	49.5	9,225.6
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	14,776.0	13,781.4	12,195.8	9,720.8	6,626.1	3,731.3	2,042.8	1,350.7	652.3	1,117.5	65,994.7
Sugar maple	565.4	361.8	408.6	188.1	309.2	70.7	71.4	141.9	54.9	596.4	2,768.4
Soft maples	3,188.5	2,224.8	2,465.3	1,580.3	1,566.6	1,213.8	518.2	118.0	182.5	50.3	13,108.3
Yellow birch	356.8	389.1	543.0	544.0	385.2	236.2	150.6	283.3	88.6	52.0	3,028.8
Paper birch	1,299.2	1,673.0	1,921.5	929.2	808.0	454.8	145.5	.0	.0	.0	7,231.2
Gray birch	1,107.6	233.3	72.0	.0	.0	.0	.0	.0	.0	.0	1,412.9
Beech	2,400.6	701.8	509.1	411.7	365.8	423.9	257.9	102.0	40.6	.0	5,213.4
White ash	.0	24.0	127.2	111.4	48.7	7.1	77.0	.0	.0	.0	395.4
Black ash	575.7	371.7	375.6	152.4	78.1	31.9	46.8	.0	.0	.0	1,632.2
Aspen	1,882.1	1,183.5	666.1	680.2	1,050.8	832.8	483.6	166.0	260.3	31.6	7,237.0
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	89.8	29.8	154.7	190.4	122.0	.0	.0	.0	.0	.0	586.7
Basswood	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Elm	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Other comm. hardwoods	11.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	11.7
Noncomm. hardwoods	686.8	67.2	57.1	.0	.0	.0	.0	.0	.0	.0	811.1
Total hardwoods	12,164.2	7,260.0	7,300.2	4,787.7	4,734.4	3,271.2	1,751.0	811.2	626.9	730.3	43,437.1
Total, all species	26,940.2	21,041.4	19,496.0	14,508.5	11,360.5	7,002.5	3,793.8	2,161.9	1,279.2	1,847.8	109,431.8

Table 78.--Net green weight of all live trees on timberland by species and diameter class, Western Maine, 1982

(In thousands of tons)

Species	Diameter class (inches at breast height)										All classes
	1.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21+	
Balsam fir	5,814.0	7,379.9	7,611.7	5,352.8	3,446.1	1,409.5	293.8	41.7	.0	.0	31,349.5
Tamarack	209.9	10.8	.0	57.0	.0	.0	.0	.0	.0	.0	277.7
White spruce	112.0	334.8	647.0	472.9	202.9	157.7	90.4	.0	.0	.0	2,017.7
Black spruce	885.7	121.1	384.2	408.1	32.0	159.8	.0	.0	.0	.0	1,990.9
Red spruce	1,978.4	4,008.7	4,976.0	3,961.2	2,724.5	1,389.2	824.9	556.1	137.4	231.8	20,788.2
Red pine	.0	43.7	52.2	48.1	68.4	149.1	279.2	55.5	59.0	.0	755.2
White pine	366.4	1,234.8	1,833.9	2,174.0	2,085.9	2,423.8	1,667.5	1,612.7	754.5	1,222.8	15,376.3
No. white-cedar	106.9	247.9	176.6	112.2	98.4	90.6	61.7	60.3	16.2	40.4	1,011.2
Hemlock	185.5	1,100.6	1,232.2	1,145.1	1,298.6	1,138.2	811.4	74.4	134.1	144.5	7,264.6
Other softwoods	.0	8.7	.0	18.2	.0	.0	.0	.0	.0	.0	26.9
Total softwoods	9,658.8	14,491.0	16,913.8	13,749.6	9,956.8	6,917.9	4,028.9	2,400.7	1,101.2	1,639.5	80,858.2
Sugar maple	1,990.5	1,318.7	1,984.9	1,731.8	1,582.9	1,025.6	572.8	310.9	294.2	424.7	11,237.0
Soft maples	2,798.4	4,468.9	4,635.7	4,110.0	2,910.6	1,611.3	783.5	594.0	287.1	546.3	22,745.8
Yellow birch	979.4	1,286.2	2,217.5	3,181.5	3,028.6	2,047.2	1,875.3	1,003.9	848.5	2,728.3	19,196.4
Paper birch	2,215.0	3,617.3	6,067.9	4,572.2	2,771.2	1,208.1	911.3	541.9	269.8	.0	22,174.7
Gray birch	570.9	537.0	214.0	181.1	53.9	42.1	39.1	.0	.0	.0	1,638.1
Beech	1,358.0	1,873.2	2,054.0	2,310.1	1,140.8	715.5	528.9	147.4	.0	.0	10,127.9
White ash	457.9	429.0	774.8	706.2	535.7	371.4	151.0	129.9	99.9	216.5	3,872.3
Black ash	72.4	74.8	80.2	80.3	33.6	.0	.0	53.3	.0	.0	394.6
Aspen	796.9	1,497.9	2,422.6	2,110.3	1,316.3	404.0	271.5	49.5	70.2	.0	8,939.2
White oaks	.0	95.2	29.9	.0	.0	.0	.0	21.4	.0	.0	146.5
Red oaks	173.3	587.5	547.8	503.3	425.7	362.6	265.7	44.4	89.8	236.2	3,236.3
Basswood	.0	18.8	.0	19.1	13.2	.0	.0	.0	31.2	.0	82.3
Elm	.0	69.5	79.1	.0	36.0	39.6	51.6	.0	.0	.0	275.8
Other comm. hardwoods	42.4	188.2	106.3	42.5	.0	.0	.0	.0	.0	.0	379.4
Noncomm. hardwoods	3,990.4	1,463.2	293.5	47.4	21.2	64.1	.0	10.7	.0	.0	5,890.5
Total hardwoods	15,445.5	17,525.4	21,508.2	19,595.8	13,869.7	7,891.5	5,450.7	2,907.3	1,990.7	4,152.0	110,336.8
Total, all species	25,104.3	32,016.4	38,422.0	33,345.4	23,826.5	14,809.4	9,479.6	5,308.0	3,091.9	5,791.5	191,195.0

Table 79.--Net volume and green weight of all trees on timberland by class of material and softwoods and hardwoods, Aroostook County, Maine, 1982

Class of material	Volume[a]			Weight[b]		
	Softwoods	Hardwoods	All species	Softwoods	Hardwoods	All species
	Million cubic feet			Thousand tons		
Sawtimber trees:						
Sawlog portion	1,824.8	606.5	2,431.3	51,584.3	25,018.7	76,603.0
Upper stem	272.0	147.9	419.9	7,646.9	6,018.9	13,665.8
Total	2,096.8	754.4	2,851.2	59,231.2	31,037.6	90,268.8
Poletimber trees	1,758.6	739.2	2,497.8	49,368.3	28,191.1	77,559.4
All growing stock	3,855.4	1,493.6	5,349.0	108,599.5	59,228.7	167,828.2
Rough cull trees[c]	179.9	194.8	374.7	5,967.0	10,155.0	16,122.0
Rotten cull trees[c]	86.8	115.0	201.8	3,060.2	6,661.7	9,721.9
Salvable dead trees[d]	129.9	27.7	157.6	7,871.2	2,823.3	10,694.5
Saplings[e]	-	-	-	26,182.9	17,087.1	43,270.0
Stumps[f]	-	-	-	2,970.6	1,812.5	4,783.1
Tops - growing stock	-	-	-	43,318.8	22,034.9	65,353.7
Tops - rough and rotten	-	-	-	3,597.5	6,143.7	9,741.2
All non-growing stock	396.6	337.5	734.1	92,968.2	66,718.2	159,686.4
All classes	4,252.0	1,831.1	6,083.1	201,567.7	125,946.9	327,514.6

[a]Excludes bark.
[b]Includes bark and sound cull; excludes rotten cull.
[c]Bole portion of trees 5.0 inches dbh and larger.
[d]Volume of bole portion of trees 5.0 inches dbh and larger, and weight of entire tree aboveground.
[e]Includes entire tree aboveground.
[f]Of all salvable dead and all live trees 5.0 inches dbh and larger.

Table 80.--Net volume and green weight of all trees on timberland by class of material and softwoods and hardwoods, Capital Region, Maine, 1982

Class of material	Volume[a]			Weight[b]		
	Softwoods	Hardwoods	All species	Softwoods	Hardwoods	All species
	Million cubic feet			Thousand tons		
Sawtimber trees:						
Sawlog portion	436.2	171.8	608.0	16,300.0	6,731.5	23,031.5
Upper stem	56.3	46.0	102.3	2,021.9	1,778.6	3,800.5
Total	492.5	217.8	710.3	18,321.9	8,510.1	26,832.0
Poletimber trees	241.6	458.2	699.8	7,604.4	16,745.7	24,350.1
All growing stock	734.1	676.0	1,410.1	25,926.3	25,255.8	51,182.1
Rough cull trees[c]	42.1	60.6	102.7	2,243.5	3,380.9	5,624.4
Rotten cull trees[c]	13.8	32.3	46.1	671.7	1,889.4	2,561.1
Salvable dead trees[d]	12.8	14.9	27.7	331.3	396.5	727.8
Saplings[e]	-	-	-	7,391.3	11,586.0	18,977.3
Stumps[f]	-	-	-	532.4	707.3	1,239.7
Tops - growing stock	-	-	-	9,340.3	10,076.9	19,417.2
Tops - rough and rotten	-	-	-	1,042.8	2,088.2	3,131.0
All non-growing stock	68.7	107.8	176.5	21,553.3	30,125.2	51,678.5
All classes	802.8	783.8	1,586.6	47,479.6	55,381.0	102,860.6

[a]Excludes bark.
[b]Includes bark and sound cull; excludes rotten cull.
[c]Bole portion of trees 5.0 inches dbh and larger.
[d]Volume of bole portion of trees 5.0 inches dbh and larger, and weight of entire tree aboveground.
[e]Includes entire tree aboveground.
[f]Of all salvable dead and all live trees 5.0 inches dbh and larger.

Table 81.--Net volume and green weight of all trees on timberland by class of material and softwoods and hardwoods, Casco Bay, Maine, 1982

Class of material	Volume[a]			Weight[b]		
	Softwoods	Hardwoods	All species	Softwoods	Hardwoods	All species
	Million cubic feet			Thousand tons		
Sawtimber trees:						
Sawlog portion	680.7	157.1	837.8	23,673.0	5,908.5	29,581.5
Upper stem	85.1	42.1	127.2	2,876.2	1,552.5	4,428.7
Total	765.8	199.2	965.0	26,549.2	7,461.0	34,010.2
Poletimber trees	200.5	482.3	682.8	6,016.7	16,156.4	22,173.1
All growing stock	966.3	681.5	1,647.8	32,565.9	23,617.4	56,183.3
Rough cull trees[c]	92.3	69.6	161.9	4,944.6	3,170.9	8,115.5
Rotten cull trees[c]	11.9	33.8	45.7	587.1	1,940.3	2,527.4
Salvable dead trees[d]	6.4	2.3	8.7	398.8	197.2	596.0
Saplings[e]	-	-	-	5,604.0	14,178.8	19,782.8
Stumps[f]	-	-	-	624.1	694.3	1,318.4
Tops - growing stock	-	-	-	11,240.6	9,574.2	20,814.8
Tops - rough and rotten	-	-	-	1,849.5	2,026.0	3,875.5
All non-growing stock	110.6	105.7	216.3	25,248.7	31,781.7	57,030.4
All classes	1,076.9	787.2	1,864.1	57,814.6	55,399.1	113,213.7

[a]Excludes bark.
[b]Includes bark and sound cull; excludes rotten cull.
[c]Bole portion of trees 5.0 inches dbh and larger.
[d]Volume of bole portion of trees 5.0 inches dbh and larger, and weight of entire tree aboveground.
[e]Includes entire tree aboveground.
[f]Of all salvable dead and all live trees 5.0 inches dbh and larger.

Table 82.--Net volume and green weight of all trees on timberland by class of material and softwoods and hardwoods, Hancock County, Maine, 1982

Class of material	Volume[a]			Weight[b]		
	Softwoods	Hardwoods	All species	Softwoods	Hardwoods	All species
	Million cubic feet			Thousand tons		
Sawtimber trees:						
Sawlog portion	361.6	57.6	419.2	11,363.4	2,369.7	13,733.1
Upper stem	50.5	15.8	66.3	1,547.0	639.1	2,186.1
Total	412.1	73.5	485.6	12,910.4	3,008.8	15,919.2
Poletimber trees	249.0	189.7	438.7	7,467.3	7,239.4	14,706.7
All growing stock	661.1	263.2	924.3	20,377.7	10,248.2	30,625.9
Rough cull trees[c]	47.5	53.6	101.1	2,053.4	3,042.5	5,095.9
Rotten cull trees[c]	6.8	21.7	28.5	296.2	1,358.1	1,654.3
Salvable dead trees[d]	6.7	3.4	10.1	471.5	360.8	832.3
Saplings[e]	-	-	-	8,203.4	5,389.1	13,592.5
Stumps[f]	-	-	-	480.0	352.7	832.7
Tops - growing stock	-	-	-	7,702.8	4,135.5	11,838.3
Tops - rough and rotten	-	-	-	956.7	1,740.6	2,697.3
All non-growing stock	61.0	78.7	139.7	20,164.0	16,379.3	36,543.3
All classes	722.1	341.9	1,064.0	40,541.7	26,627.5	67,169.2

[a]Excludes bark.
[b]Includes bark and sound cull; excludes rotten cull.
[c]Bole portion of trees 5.0 inches dbh and larger.
[d]Volume of bole portion of trees 5.0 inches dbh and larger, and weight of entire tree aboveground.
[e]Includes entire tree aboveground.
[f]Of all salvable dead and all live trees 5.0 inches dbh and larger.

Table 83.--Net volume and green weight of all trees on timberland by class of material and softwoods and hardwoods, Penobscot County, Maine, 1982

Class of material	Volume[a]			Weight[b]		
	Softwoods	Hardwoods	All species	Softwoods	Hardwoods	All species
	Million cubic feet			Thousand tons		
Sawtimber trees:						
Sawlog portion	711.2	259.7	970.9	24,298.1	11,099.0	35,397.1
Upper stem	102.5	68.5	171.0	3,428.7	2,890.4	6,319.1
Total	813.7	328.2	1,141.9	27,726.8	13,989.4	41,716.2
Poletimber trees	604.8	459.0	1,063.8	18,976.7	18,779.1	37,755.8
All growing stock	1,418.5	787.2	2,205.7	46,703.5	32,768.5	79,472.0
Rough cull trees[c]	126.0	142.1	268.1	4,978.2	7,367.3	12,345.5
Rotten cull trees[c]	37.7	61.4	99.1	1,485.0	3,950.4	5,435.4
Salvable dead trees[d]	35.8	9.9	45.7	2,383.5	1,109.4	3,492.9
Saplings[e]	-	-	-	12,422.2	10,962.4	23,384.6
Stumps[f]	-	-	-	1,291.1	1,051.5	2,342.6
Tops - growing stock	-	-	-	18,125.3	12,592.8	30,718.1
Tops - rough and rotten	-	-	-	2,588.2	4,513.7	7,101.9
All non-growing stock	199.5	213.4	412.9	43,273.5	41,547.5	84,821.0
All classes	1,618.0	1,000.6	2,618.6	89,977.0	74,316.0	164,293.0

[a]Excludes bark.
[b]Includes bark and sound cull; excludes rotten cull.
[c]Bole portion of trees 5.0 inches dbh and larger.
[d]Volume of bole portion of trees 5.0 inches dbh and larger, and weight of entire tree aboveground.
[e]Includes entire tree aboveground.
[f]Of all salvable dead and all live trees 5.0 inches dbh and larger.

Table 84.--Net volume and green weight of all trees on timberland by class of material and softwoods and hardwoods, Piscataquis County, Maine, 1982

Class of material	Volume[a]			Weight[b]		
	Softwoods	Hardwoods	All species	Softwoods	Hardwoods	All species
	Million cubic feet			Thousand tons		
Sawtimber trees:						
Sawlog portion	1,209.4	407.3	1,616.7	36,005.4	16,331.2	52,336.6
Upper stem	172.2	100.9	273.1	5,052.0	3,984.4	9,036.4
Total	1,381.6	508.2	1,889.8	41,057.4	20,315.6	61,373.0
Poletimber trees	1,087.2	473.9	1,561.1	30,402.4	18,131.4	48,533.8
All growing stock	2,468.8	982.1	3,450.9	71,459.8	38,447.0	109,906.8
Rough cull trees[c]	90.1	79.9	170.0	2,630.4	3,581.1	6,211.5
Rotten cull trees[c]	99.8	99.7	199.5	3,232.1	5,056.3	8,288.4
Salvable dead trees[d]	56.8	14.4	71.2	3,408.5	1,324.6	4,733.1
Saplings[e]	-	-	-	17,727.2	7,440.5	25,167.7
Stumps[f]	-	-	-	1,776.6	1,142.5	2,919.1
Tops - growing stock	-	-	-	27,891.4	14,194.0	42,085.4
Tops - rough and rotten	-	-	-	2,306.6	3,154.8	5,461.4
All non-growing stock	246.7	194.0	440.7	58,972.8	35,893.8	94,866.6
All classes	2,715.5	1,176.1	3,891.6	130,432.6	74,340.8	204,773.4

[a]Excludes bark.
[b]Includes bark and sound cull; excludes rotten cull.
[c]Bole portion of trees 5.0 inches dbh and larger.
[d]Volume of bole portion of trees 5.0 inches dbh and larger, and weight of entire tree aboveground.
[e]Includes entire tree aboveground.
[f]Of all salvable dead and all live trees 5.0 inches dbh and larger.

Table 85.--Net volume and green weight of all trees on timberland by class of material and softwoods and hardwoods, Somerset County, Maine, 1982

Class of material	Volume[a]			Weight[b]		
	Softwoods	Hardwoods	All species	Softwoods	Hardwoods	All species
	--------Million cubic feet-------			----------Thousand tons----------		
Sawtimber trees:						
Sawlog portion	988.9	473.0	1,461.9	30,011.1	19,714.8	49,725.9
Upper stem	148.1	117.6	265.7	4,433.6	4,845.9	9,279.5
Total	1,137.0	590.6	1,727.6	34,444.7	24,560.7	59,005.4
Poletimber trees	1,038.2	655.4	1,693.6	29,837.8	25,489.4	55,327.2
All growing stock	2,175.2	1,246.0	3,421.2	64,282.5	50,050.1	114,332.6
Rough cull trees[c]	99.5	143.1	242.6	3,064.0	6,592.2	9,656.2
Rotten cull trees[c]	39.2	91.4	130.6	1,231.4	4,780.5	6,011.9
Salvable dead trees[d]	75.6	25.5	101.1	3,725.3	1,876.6	5,601.9
Saplings[e]	-	-	-	15,993.4	11,932.5	27,925.9
Stumps[f]	-	-	-	1,610.1	1,461.3	3,071.4
Tops - growing stock	-	-	-	25,690.2	18,856.7	44,546.9
Tops - rough and rotten	-	-	-	1,788.2	4,175.7	5,963.9
All non-growing stock	214.3	260.0	474.3	53,102.6	49,675.5	102,778.1
All classes	2,389.5	1,506.0	3,895.5	117,385.1	99,725.6	217,110.7

[a]Excludes bark.
[b]Includes bark and sound cull; excludes rotten cull.
[c]Bole portion of trees 5.0 inches dbh and larger.
[d]Volume of bole portion of trees 5.0 inches dbh and larger, and weight of entire tree aboveground.
[e]Includes entire tree aboveground.
[f]Of all salvable dead and all live trees 5.0 inches dbh and larger.

Table 86.--Net volume and green weight of all trees on timberland by class of material and softwoods and hardwoods, Washington County, Maine, 1982

Class of material	Volume[a]			Weight[b]		
	Softwoods	Hardwoods	All species	Softwoods	Hardwoods	All species
	Million cubic feet			Thousand tons		
Sawtimber trees:						
Sawlog portion	452.4	128.6	581.0	15,181.8	5,422.7	20,604.5
Upper stem	66.9	34.6	101.5	2,209.4	1,442.6	3,652.0
Total	519.3	163.2	682.5	17,391.2	6,865.3	24,256.5
Poletimber trees	425.5	250.8	676.3	13,216.7	10,313.1	23,529.8
All growing stock	944.8	414.0	1,358.8	30,607.9	17,178.4	47,786.3
Rough cull trees[c]	108.8	42.3	151.1	3,990.9	2,566.6	6,557.5
Rotten cull trees[c]	24.7	25.7	50.4	1,365.3	2,287.8	3,653.1
Salvable dead trees[d]	64.2	32.4	96.6	1,628.7	1,229.3	2,858.0
Saplings[e]	-	-	-	14,776.0	12,164.2	26,940.2
Stumps[f]	-	-	-	869.1	538.6	1,407.7
Tops - growing stock	-	-	-	12,073.9	6,806.2	18,880.1
Tops - rough and rotten	-	-	-	2,359.7	1,920.7	4,280.4
All non-growing stock	197.7	100.4	298.1	37,063.6	27,513.4	64,577.0
All classes	1,142.5	514.4	1,656.9	67,671.5	44,691.8	112,363.3

[a]Excludes bark.
[b]Includes bark and sound cull; excludes rotten cull.
[c]Bole portion of trees 5.0 inches dbh and larger.
[d]Volume of bole portion of trees 5.0 inches dbh and larger, and weight of entire tree aboveground.
[e]Includes entire tree aboveground.
[f]Of all salvable dead and all live trees 5.0 inches dbh and larger.

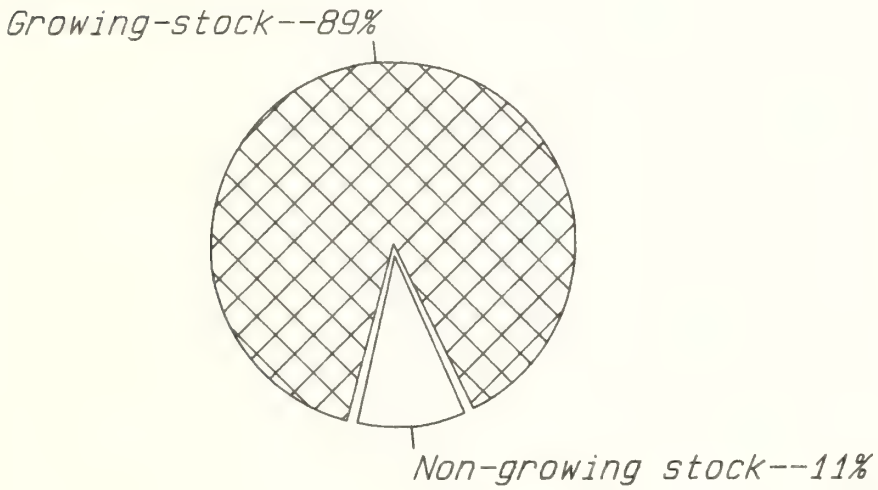
Table 87.--Net volume and green weight of all trees on timberland by class of material and softwoods and hardwoods, Western Maine, 1982

Class of material	Volume[a]			Weight[b]		
	Softwoods	Hardwoods	All species	Softwoods	Hardwoods	All species
	--------Million cubic feet-------			----------Thousand tons----------		
Sawtimber trees:						
Sawlog portion	770.9	455.4	1,226.3	24,493.6	18,088.6	42,582.2
Upper stem	112.0	119.8	231.8	3,490.5	4,675.2	8,165.7
Total	882.9	575.2	1,458.1	27,984.1	22,763.8	50,747.9
Poletimber trees	651.2	919.0	1,570.2	18,654.1	33,788.6	52,442.7
All growing stock	1,534.1	1,494.2	3,028.3	46,638.2	56,552.4	103,190.6
Rough cull trees[c]	70.9	115.8	186.7	2,808.4	5,999.2	8,807.6
Rotten cull trees[c]	26.3	83.3	109.6	1,024.8	4,715.7	5,740.5
Salvable dead trees[d]	54.4	14.2	68.6	2,738.4	1,066.2	3,804.6
Saplings[e]	-	-	-	9,658.8	15,445.5	25,104.3
Stumps[f]	-	-	-	1,074.5	1,592.7	2,667.2
Tops - growing stock	-	-	-	18,159.8	21,864.1	40,023.9
Tops - rough and rotten	-	-		1,547.9	4,196.7	5,744.6
All non-growing stock	151.6	213.3	364.9	37,012.6	54,880.1	91,892.7
All classes	1,685.7	1,707.5	3,393.2	83,650.8	111,432.5	195,083.3

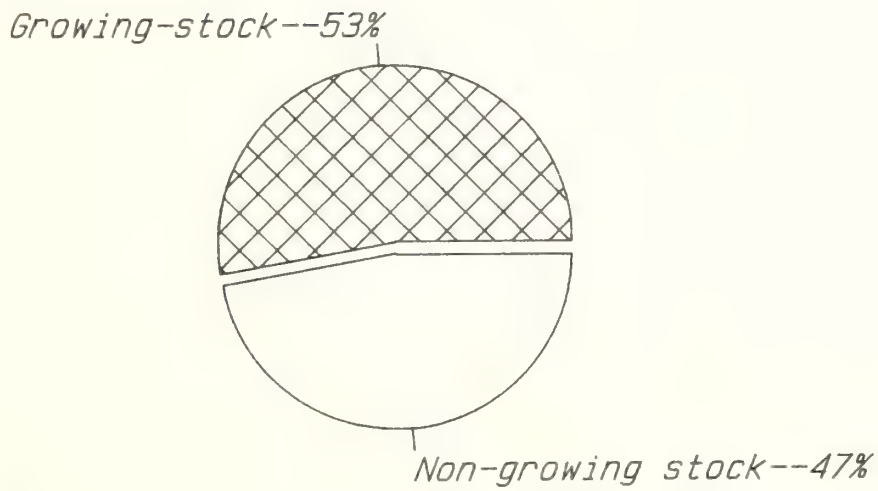
[a]Excludes bark.
[b]Includes bark and sound cull; excludes rotten cull.
[c]Bole portion of trees 5.0 inches dbh and larger.
[d]Volume of bole portion of trees 5.0 inches dbh and larger, and weight of entire tree aboveground.
[e]Includes entire tree aboveground.
[f]Of all salvable dead and all live trees 5.0 inches dbh and larger.

Proportion of Growing-stock Versus Non-growing Stock Material

Western Maine 1982



Net Cubic Foot Volume



Net Green Weight

Table 88.--Net volume of growing-stock trees on timberland by species and diameter class, Aroostook County, Maine, 1971

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	560.7	621.5	393.5	164.3	58.4	16.7	4.6	1.8	.0	.0	1,821.5
Tamarack	.7	7.1	7.5	10.2	3.4	1.2	.0	.0	.0	.0	30.1
White spruce	53.2	74.9	63.0	38.7	17.9	13.4	11.4	1.1	1.3	.0	274.9
Black spruce	14.6	17.6	8.8	.0	.0	.0	.0	.0	.0	.0	41.0
Red spruce	205.2	274.0	255.7	209.1	148.3	88.9	50.8	22.2	17.1	.0	1,271.3
Red pine	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
White pine	1.3	4.2	2.1	3.7	8.2	3.8	9.5	5.0	15.0	1.4	54.2
Northern white-cedar	69.8	91.6	89.1	64.9	32.0	24.6	8.4	.4	2.7	.0	383.5
Hemlock	7.9	9.1	14.1	14.3	13.0	5.4	8.5	5.5	11.1	.0	88.9
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	913.4	1,100.0	833.8	505.2	281.2	154.0	93.2	36.0	47.2	1.4	3,965.4
Sugar maple	28.7	33.7	50.2	37.5	47.1	52.1	21.4	28.1	43.2	1.0	343.0
Red maple	27.9	41.1	32.9	38.0	32.6	25.8	6.3	5.2	3.0	.0	212.8
Yellow birch	12.7	29.6	25.5	26.7	21.7	14.0	7.6	8.0	5.7	.0	151.5
Paper birch	37.9	12.6	23.4	15.1	7.2	3.1	1.7	.0	2.1	.0	103.1
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	12.6	31.8	35.3	51.0	35.8	14.7	11.2	1.2	.4	.0	194.0
White ash	3.9	6.4	6.5	4.2	2.9	4.6	.0	1.1	.0	.0	29.6
Black ash	4.9	6.9	3.5	12.1	4.7	2.3	1.1	.0	.0	.0	35.5
Aspen	46.0	51.9	62.4	58.5	30.9	13.4	8.2	1.9	.0	.0	273.2
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Basswood	.2	.0	.0	.0	.0	1.0	.0	.0	.0	.0	1.2
Elm	.0	2.8	5.5	.8	2.0	.0	.0	.0	.0	.0	11.1
Other hardwoods	2.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.0
Total hardwoods	176.8	216.8	245.2	243.9	184.9	131.0	57.5	45.5	54.4	1.0	1,357.0
Total, all species	1,090.2	1,316.8	1,079.0	749.1	466.1	285.0	150.7	81.5	101.6	2.4	5,322.4

Table 89.--Net volume of growing-stock trees on timberland by species and diameter class, Aroostook County, Maine, 1982

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	361.3	445.3	338.4	162.1	45.8	15.4	4.4	1.6	.0	.0	1,374.3
Tamarack	4.8	3.6	7.3	7.0	5.7	3.5	7.0	2.6	.7	.0	42.2
White spruce	43.7	67.7	61.2	46.7	20.6	10.0	.6	.0	3.2	.0	253.7
Black spruce	95.0	72.0	40.6	11.2	3.5	.0	.0	1.3	.0	.0	223.6
Red spruce	155.7	243.9	236.6	194.3	127.7	66.3	30.4	21.7	8.6	.0	1,085.2
Red pine	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
White pine	3.7	3.2	1.6	6.7	6.2	6.7	4.1	5.3	12.5	7.2	57.2
Northern white-cedar	98.0	143.6	144.6	146.0	94.9	55.6	22.6	15.5	11.1	.0	731.9
Hemlock	6.1	10.7	11.5	17.3	8.8	11.5	4.7	5.8	9.8	.8	87.0
Other softwoods	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.3
Total softwoods	768.3	990.3	841.8	591.3	313.2	169.0	73.8	53.8	45.9	8.0	3,855.4
Sugar maple	36.6	45.1	51.2	43.9	53.8	37.5	45.8	37.4	58.9	3.8	414.0
Red maple	33.2	42.1	33.0	25.0	22.0	11.7	7.1	5.9	.0	.0	180.0
Yellow birch	14.2	23.3	23.9	32.1	23.2	20.1	9.8	4.3	7.3	.0	158.2
Paper birch	39.0	44.0	29.8	11.5	3.5	4.1	1.1	.0	.0	.0	133.0
Gray birch	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
Beech	16.0	23.4	23.2	36.9	34.5	26.0	6.0	4.3	6.6	.0	176.9
White ash	1.2	2.6	4.1	2.2	.0	1.5	.0	.7	1.6	.0	13.9
Black ash	4.5	9.2	8.1	6.2	4.4	2.3	.6	1.9	1.5	.0	38.7
Aspen	47.7	87.9	94.1	70.5	36.4	20.3	6.9	2.0	3.5	3.5	372.8
White oak	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	.0	.0	.0	.5	.6	.0	.0	.0	.0	.0	1.1
Basswood	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
Elm	.5	.5	.5	1.4	.5	.0	.0	.0	.6	.0	4.0
Other hardwoods	.0	.0	.0	.7	.0	.0	.0	.0	.0	.0	.7
Total hardwoods	193.2	278.1	267.9	230.9	178.9	123.5	77.3	56.5	80.0	7.3	1,493.6
Total, all species	961.5	1,268.4	1,109.7	822.2	492.1	292.5	151.1	110.3	125.9	15.3	5,349.0

Table 90.--Net volume of growing-stock trees on timberland by species and diameter class, Capital Region, Maine, 1971

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	63.7	37.7	15.4	3.5	.0	.0	.0	.0	.0	.0	120.3
Tamarack	1.5	1.8	1.5	1.0	2.4	.0	.0	.0	.0	.0	8.2
White spruce	3.8	6.1	5.5	2.3	.0	1.7	.0	1.6	1.7	.0	22.7
Black spruce	9.6	6.3	.0	1.2	2.0	.0	.0	.0	.0	.0	19.1
Red spruce	19.5	26.3	14.6	12.9	6.7	1.1	.0	.0	.0	.0	81.1
Red pine	1.5	.0	.0	1.1	.0	1.1	.0	.0	.0	.0	3.7
White pine	15.5	21.2	28.1	20.8	21.6	14.9	6.8	13.7	19.2	6.4	168.2
Northern white-cedar	14.8	14.4	7.4	5.0	.8	.0	.0	.0	.0	.0	42.4
Hemlock	14.3	17.0	20.4	22.4	12.0	12.5	.9	.9	.0	1.0	101.4
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	144.2	130.8	92.9	70.2	45.5	31.3	7.7	16.2	20.9	7.4	567.1
Sugar maple	4.7	17.8	9.5	3.6	3.2	2.4	3.4	.0	.0	.0	44.6
Red maple	32.1	45.9	26.0	16.5	12.3	2.6	3.9	2.3	.0	1.8	143.4
Yellow birch	2.5	2.1	4.4	3.8	3.4	4.4	.8	.0	1.5	.0	22.9
Paper birch	12.6	15.7	17.1	7.0	4.7	1.4	.0	.7	.0	.0	59.2
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	1.9	4.2	1.5	1.0	2.0	.0	.0	.0	.0	.0	10.6
White ash	5.3	7.5	3.4	4.9	2.5	.0	.0	.0	.0	.0	23.6
Black ash	3.4	1.9	1.7	1.1	.0	1.5	.0	.0	.0	.0	9.6
Aspen	8.9	14.3	5.9	5.4	2.1	.0	.0	.0	.0	.0	36.6
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	4.5	6.2	7.1	11.7	8.7	2.5	.6	1.7	.0	1.2	44.2
Basswood	9.2	6.4	5.3	4.8	2.1	.4	.0	.0	.0	.0	28.2
Elm	3.3	2.5	6.3	6.2	2.1	3.9	4.6	5.2	4.4	2.4	40.9
Other hardwoods	.5	2.9	.0	.6	.0	.0	.0	.0	.0	.0	4.0
Total hardwoods	88.9	127.4	88.2	66.6	43.1	19.1	13.3	9.9	5.9	5.4	467.8
Total, all species	233.1	258.2	181.1	136.8	88.6	50.4	21.0	26.1	26.8	12.8	1,034.9

Table 91.--Net volume of growing-stock trees on timberland by species and diameter class, Capital Region, Maine, 1982

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	43.8	31.2	13.6	2.8	.7	.3	.0	.0	.0	.0	92.4
Tamarack	1.1	3.4	2.7	3.6	3.2	2.4	.8	.0	.0	.0	17.2
White spruce	3.5	2.9	2.9	3.4	1.9	.4	.0	.9	.0	.0	15.9
Black spruce	.2	.5	.2	.0	.0	.0	.0	.0	.0	.0	.9
Red spruce	27.9	33.6	34.9	27.6	22.4	12.4	4.6	1.2	2.8	.0	167.4
Red pine	.0	.0	.1	.4	.3	.4	.0	.0	.0	.0	1.2
White pine	15.6	26.0	33.9	42.5	37.7	24.9	22.8	17.7	33.0	16.0	270.1
Northern white-cedar	9.9	11.1	8.4	3.7	1.1	.3	.0	.0	.0	.0	34.5
Hemlock	12.2	18.7	27.3	23.1	24.4	15.0	6.3	3.0	4.1	.4	134.5
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	114.2	127.4	124.0	107.1	91.7	56.1	34.5	22.8	39.9	16.4	734.1
Sugar maple	6.4	10.1	8.5	3.1	1.5	.8	1.8	.0	.3	.0	32.5
Red maple	43.9	55.0	46.8	33.8	15.0	9.1	8.1	4.8	3.7	2.4	222.6
Yellow birch	3.2	5.3	5.1	2.8	1.4	1.6	.4	.0	.0	.0	19.8
Paper birch	22.3	27.0	18.6	10.8	3.6	1.5	.4	.0	.0	.0	84.2
Gray birch	5.0	2.3	.3	.2	.0	.3	.3	.0	.0	.0	8.4
Beech	5.1	9.8	4.7	4.3	1.0	.8	.7	.0	.0	.0	26.4
White ash	5.9	9.0	7.2	3.4	2.4	2.6	1.9	.0	1.0	.0	33.4
Black ash	.8	.3	.2	.0	.0	.0	.0	.0	.0	.0	1.3
Aspen	23.0	32.0	26.8	15.2	8.2	1.9	.3	.0	.0	.0	107.4
White oak	.2	.3	.0	.0	.0	.0	.0	.0	.0	.0	.5
Red oaks	12.4	21.4	21.1	22.0	12.4	10.9	5.2	3.2	5.8	.3	114.7
Basswood	.4	1.3	.4	.7	.6	.8	.5	.0	.0	.0	4.7
Elm	.4	.7	.2	.4	.2	.0	.0	.0	.0	.0	1.9
Other hardwoods	4.2	5.0	5.6	1.0	.8	1.2	.0	.0	.4	.0	18.2
Total hardwoods	133.2	179.5	145.5	97.7	47.1	31.5	19.6	8.0	11.2	2.7	676.0
Total, all species	247.4	306.9	269.5	204.8	138.8	87.6	54.1	30.8	51.1	19.1	1,410.1

Table 92.--Net volume of growing-stock trees on timberland by species and diameter class, Casco Bay, Maine, 1971

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	9.2	3.2	2.8	2.5	.0	.0	.0	.0	.0	.0	17.7
Tamarack	3.2	1.3	.0	.0	.0	.0	.0	.0	.0	.0	4.5
White spruce	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Black spruce	2.8	2.3	.0	.0	.0	.0	.0	.0	.0	.0	5.1
Red spruce	6.6	24.7	18.4	4.1	1.9	1.6	.0	1.2	.0	.0	58.5
Red pine	1.7	1.1	.0	1.2	.0	.0	.0	.0	.0	.0	4.0
White pine	42.9	95.0	88.4	112.7	90.0	64.3	42.8	20.2	39.3	10.4	606.0
Northern white-cedar	.6	.4	.0	.0	.0	.0	.0	.0	.0	.0	1.0
Hemlock	30.1	48.0	46.3	25.1	29.3	24.3	10.8	3.2	2.1	.0	219.2
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	97.1	176.0	155.9	145.6	121.2	90.2	53.6	24.6	41.4	10.4	916.0
Sugar maple	2.7	4.8	.0	.0	.0	.0	2.0	.0	4.6	.0	14.1
Red maple	35.6	38.5	25.8	14.4	8.4	5.5	.9	.0	.0	1.9	131.0
Yellow birch	5.7	4.2	7.0	2.9	2.7	.0	1.1	.0	.0	.0	23.6
Paper birch	14.3	16.8	14.5	6.8	1.5	1.1	.0	.0	.0	1.3	56.3
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	8.3	16.2	6.6	1.2	1.7	3.1	.0	.0	1.0	.0	38.1
White ash	1.5	1.6	.7	1.5	.0	.0	.0	1.2	.0	1.4	7.9
Black ash	.0	1.0	1.1	.0	.0	.0	.0	.0	.0	.0	2.1
Aspen	8.7	14.0	5.0	1.0	.0	.0	.0	.0	.0	.0	28.7
White oaks	.0	.0	.0	1.9	.0	1.1	.0	.0	.0	.9	3.9
Red oaks	15.8	28.0	23.4	28.3	18.6	13.1	8.5	2.9	4.9	.0	143.5
Basswood	.0	.0	.0	1.3	.0	.0	.0	.0	.0	.0	1.3
Elm	.8	2.6	.0	.0	.0	2.2	.0	.0	.0	.0	5.6
Other hardwoods	4.5	3.8	2.0	1.1	.0	.0	.0	.0	.0	.0	11.4
Total hardwoods	97.9	131.5	86.1	60.4	32.9	26.1	12.5	4.1	10.5	5.5	467.5
Total, all species	195.0	307.5	242.0	206.0	154.1	116.3	66.1	28.7	51.9	15.9	1,383.5

Table 93.--Net volume of growing-stock trees on timberland by species and diameter class, Casco Bay, Maine, 1982

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	12.3	13.0	10.5	2.9	.8	.0	.0	.0	.0	.0	39.5
Tamarack	.7	.0	.6	1.2	.6	.0	.0	.0	.0	.0	3.1
White spruce	.3	.3	.0	.0	.0	.0	.0	.0	.0	.0	.6
Black spruce	1.4	.0	.0	.3	.0	.0	.0	.0	.0	.0	1.7
Red spruce	3.8	6.4	8.6	4.8	3.8	1.4	.0	.0	.0	.0	28.8
Red pine	.8	1.4	3.7	4.2	1.9	.8	.0	.0	.0	.0	12.8
White pine	35.9	66.7	83.9	90.3	85.7	91.6	59.3	35.2	47.3	3.4	599.3
Northern white-cedar	1.4	1.1	1.1	.5	.0	.0	.0	.0	.0	.0	4.1
Hemlock	18.5	34.2	45.8	53.7	49.2	29.8	18.9	6.2	9.0	.0	265.3
Other softwoods	.4	1.9	1.9	2.3	3.2	1.1	.3	.0	.0	.0	11.1
Total softwoods	75.5	125.0	156.1	160.2	145.2	124.7	78.5	41.4	56.3	3.4	966.3
Sugar maple	3.5	3.8	2.0	1.8	3.1	1.3	.7	.0	.4	.0	16.6
Red maple	51.4	65.7	45.5	27.1	13.9	4.9	3.1	1.6	1.0	.0	214.2
Yellow birch	3.0	5.2	2.1	1.8	.4	.0	.0	.4	.0	.0	12.9
Paper birch	18.4	21.2	17.2	6.5	3.8	1.0	.4	.0	.7	.0	69.2
Gray birch	4.7	2.7	1.0	1.0	.0	.0	.0	.0	.0	.0	9.4
Beech	6.2	10.5	6.4	6.3	1.3	1.0	1.5	.4	.0	.0	33.6
White ash	8.2	7.0	4.2	2.2	.0	.8	1.0	1.3	.0	.0	24.7
Black ash	.4	.1	.0	.0	.0	.0	.0	.0	.0	.0	.5
Aspen	18.0	28.8	20.9	6.3	3.2	1.0	.0	.0	.4	.0	78.6
White oak	2.6	3.7	2.5	.9	1.3	2.0	.0	.7	.3	.0	14.0
Red oaks	29.6	48.8	31.1	31.1	26.0	11.4	9.8	5.9	4.6	.3	198.6
Basswood	.2	.1	.0	.0	.3	.0	.0	.0	.0	.0	.6
Elm	.1	.7	.0	.0	.0	.0	.0	.0	.0	.0	.8
Other hardwoods	2.3	1.9	.6	1.4	.6	.6	.4	.0	.0	.0	7.8
Total hardwoods	148.6	200.2	133.5	86.4	53.9	24.0	16.9	10.3	7.4	.3	681.5
Total, all species	224.1	325.2	289.6	246.6	199.1	148.7	95.4	51.7	63.7	3.7	1,647.8

Table 94.--Net volume of growing-stock trees on timberland by species and diameter class, Hancock County, Maine, 1971

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	54.6	25.5	8.1	1.8	.0	.0	.0	.0	.0	.0	90.0
Tamarack	.4	3.5	2.2	1.5	1.0	.0	.0	.0	.0	.0	8.6
White spruce	4.0	7.4	8.9	4.6	.9	1.1	.0	.0	.0	.0	26.9
Black spruce	2.2	2.2	.0	1.3	.0	.0	.0	.0	.0	.0	5.7
Red spruce	48.7	59.6	70.9	34.9	22.3	14.2	6.5	2.7	2.0	.0	261.8
Red pine	.0	.0	1.3	.0	.0	.0	.0	.0	.0	.0	1.3
White pine	2.2	1.7	5.5	.0	4.1	7.3	.7	3.0	2.9	2.4	29.8
Northern white-cedar	16.7	32.8	22.2	9.4	5.0	.0	.0	.0	.0	.0	86.1
Hemlock	8.5	12.3	7.5	16.0	13.0	10.6	.9	.0	.7	.0	69.5
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	137.3	145.0	126.6	69.5	46.3	33.2	8.1	5.7	5.6	2.4	579.7
Sugar maple	2.3	3.1	3.1	2.9	.0	.0	.0	.0	1.0	1.5	13.9
Red maple	12.2	27.0	13.6	9.3	5.5	6.1	1.1	1.6	.5	.0	76.9
Yellow birch	1.0	1.4	.7	3.8	1.0	1.1	1.1	.7	.0	.0	10.8
Paper birch	15.0	13.3	8.2	4.5	.8	.0	.0	.0	.0	.0	41.8
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	2.3	3.7	2.4	1.5	.6	2.7	.7	.0	.0	.0	13.9
White ash	2.1	5.2	.6	2.2	1.4	1.2	.0	.0	1.5	.0	14.2
Black ash	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Aspen	.8	7.7	3.3	2.7	.0	.0	.0	.0	.0	.0	14.5
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	6.1	2.2	1.5	.8	1.5	.0	.0	.0	.0	.0	12.1
Basswood	.0	.0	.0	.0	.0	1.0	.0	.0	.0	.0	1.0
Elm	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Other hardwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total hardwoods	41.8	63.6	33.4	27.7	10.8	12.1	2.9	2.3	3.0	1.5	199.1
Total, all species	179.1	208.6	160.0	97.2	57.1	45.3	11.0	8.0	8.6	3.9	778.8

Table 95.--Net volume of growing-stock trees on timberland by species and diameter class, Hancock County, Maine, 1982

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	46.4	24.7	11.3	4.1	.7	.0	.0	.0	.0	.0	87.2
Tamarack	.5	.4	3.0	.6	1.5	.0	1.3	.0	.0	.0	7.3
White spruce	2.1	2.2	1.2	1.3	1.8	.0	.0	.0	.0	.0	8.6
Black spruce	5.5	5.7	2.4	.7	1.7	.0	.0	.0	.0	.0	16.0
Red spruce	39.0	66.2	75.0	58.4	32.8	21.2	7.6	3.2	7.7	.0	311.1
Red pine	.0	.0	2.0	2.4	1.7	.0	1.0	.0	.0	.0	7.1
White pine	4.4	5.1	6.3	11.2	6.1	11.7	1.0	5.0	9.9	8.2	68.9
Northern white-cedar	10.0	18.3	17.4	13.5	3.5	7.5	.0	.0	.0	.0	70.2
Hemlock	9.1	9.4	19.8	15.7	6.1	8.0	1.8	5.9	8.9	.0	84.7
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	117.0	132.0	138.4	107.9	55.9	48.4	12.7	14.1	26.5	8.2	661.1
Sugar maple	1.9	.8	1.3	.7	1.2	1.8	1.1	.0	1.5	.0	10.3
Red maple	18.5	24.7	17.6	12.2	5.9	6.6	2.8	.0	.0	.0	88.3
Yellow birch	3.6	6.1	5.8	1.2	.8	1.0	.7	.0	.0	.0	19.2
Paper birch	20.5	23.1	14.5	5.6	1.5	.0	.0	.0	.0	.9	66.1
Gray birch	1.4	.5	.0	.7	.0	.0	.0	.0	.0	.0	2.6
Beech	1.7	.0	.9	1.1	.7	.0	.0	.0	.0	.0	4.4
White ash	1.9	.9	2.1	2.7	2.4	.0	1.1	.0	.0	.0	11.1
Black ash	1.1	.0	.7	1.4	.7	.0	.0	.0	.0	.0	3.9
Aspen	9.1	12.5	16.5	8.8	5.7	.0	.0	.0	.0	.0	52.6
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	.2	.3	1.5	.0	.6	1.3	.8	.0	.0	.0	4.7
Basswood	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Elm	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Other hardwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total hardwoods	59.9	68.9	60.9	34.4	19.5	10.7	6.5	.0	1.5	.9	263.2
Total, all species	176.9	200.9	199.3	142.3	75.4	59.1	19.2	14.1	28.0	9.1	924.3

Table 96.--Net volume of growing-stock trees on timberland by species and diameter class, Penobscot County, Maine, 1971

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	194.6	132.9	62.3	36.5	6.7	.7	.9	.0	.0	.0	434.6
Tamarack	3.8	2.9	1.7	1.0	.0	1.1	.0	.0	.0	.0	10.5
White spruce	10.9	10.0	9.0	6.6	.0	1.8	.0	.0	.0	.0	38.3
Black spruce	9.1	17.3	3.0	.0	1.1	.0	.0	.0	.0	.0	30.5
Red spruce	95.2	112.8	111.9	69.6	47.7	18.5	6.4	2.7	.0	.0	464.8
Red pine	.5	.6	1.2	.0	.0	.0	.0	.0	.0	.0	2.3
White pine	5.7	7.9	7.6	9.2	19.0	21.0	16.0	8.1	13.3	10.0	117.8
Northern white-cedar	43.3	56.1	40.2	25.1	7.4	2.3	.6	.0	.0	.0	175.0
Hemlock	35.8	49.3	43.1	48.3	36.2	25.5	12.4	8.7	11.5	.0	270.8
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	398.9	389.8	280.0	196.3	118.1	70.9	36.3	19.5	24.8	10.0	1,544.6
Sugar maple	12.7	18.2	14.8	8.2	10.0	8.5	14.9	10.4	14.4	2.7	114.8
Red maple	32.1	43.6	36.8	43.4	24.7	27.5	10.0	6.7	4.0	.0	228.8
Yellow birch	6.3	6.2	18.9	16.5	6.3	6.2	4.3	.0	1.7	.0	66.4
Paper birch	14.3	14.4	10.8	4.8	7.6	5.2	.9	.7	1.3	.0	60.0
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	12.9	14.8	15.6	11.7	11.7	4.6	.9	1.3	.0	.0	73.5
White ash	3.9	4.5	12.5	3.6	.0	2.6	2.4	.0	1.1	.0	30.6
Black ash	.5	3.9	1.7	3.0	6.2	6.1	1.0	.0	.0	.0	22.4
Aspen	18.3	16.9	12.0	5.2	6.1	1.2	.0	.0	.0	.0	59.7
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	.5	.9	2.7	.0	.0	1.0	.9	.0	2.2	.0	8.2
Basswood	.6	.7	.0	2.9	.7	.0	.0	.0	1.6	.0	6.5
Elm	1.2	2.6	2.8	4.9	2.4	.0	.9	.7	.9	1.3	17.7
Other hardwoods	1.1	.0	.0	.0	.0	.0	.0	.0	.3	.0	1.4
Total hardwoods	104.4	126.7	128.6	104.2	75.7	62.9	36.2	19.8	27.5	4.0	690.0
Total, all species	503.3	516.5	408.6	300.5	193.8	133.8	72.5	39.3	52.3	14.0	2,234.6

Table 97.--Net volume of growing-stock trees on timberland by species and diameter class, Penobscot County, Maine 1982

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	88.7	77.8	40.2	10.2	.7	.9	.0	.0	.0	.0	218.5
Tamarack	3.8	3.8	3.1	3.5	1.3	.0	.0	.0	.0	.0	15.5
White spruce	7.8	8.1	5.0	2.9	3.3	2.8	1.3	1.9	.0	.0	33.1
Black spruce	5.6	3.0	3.3	1.3	.7	.0	.0	.0	.0	.0	13.9
Red spruce	61.2	106.5	114.7	82.0	53.5	17.0	2.5	2.1	1.7	.0	441.2
Red pine	.7	.7	3.2	7.8	3.2	3.9	.0	.0	.0	.0	19.5
White pine	5.2	7.4	12.8	15.9	17.6	17.8	15.0	10.0	16.6	15.0	133.3
Northern white-cedar	54.7	75.5	53.3	35.6	22.0	5.4	1.3	.0	.0	.0	247.8
Hemlock	37.3	57.0	56.6	61.0	34.9	22.8	5.6	11.3	9.2	.0	295.7
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	265.0	339.8	292.2	220.2	137.2	70.6	25.7	25.3	27.5	15.0	1,418.5
Sugar maple	10.9	18.9	20.3	13.6	17.3	9.0	10.3	7.0	5.4	.0	112.7
Red maple	28.2	39.7	35.1	32.9	19.1	5.8	6.1	1.3	4.6	.0	172.8
Yellow birch	10.8	11.5	13.5	6.4	5.7	5.3	1.3	.8	2.2	.0	57.5
Paper birch	17.4	25.9	24.6	12.3	4.3	2.3	.0	.7	.7	.0	88.2
Gray birch	5.9	3.0	.0	.0	.0	.0	.0	.0	.0	.0	8.9
Beech	21.2	24.0	13.6	13.4	10.5	2.2	.7	.0	.0	.0	85.6
White ash	4.3	4.8	8.4	7.5	4.1	1.9	.0	.0	1.7	.0	32.7
Black ash	3.6	2.7	1.7	3.7	2.4	.0	.0	2.4	.0	.0	16.5
Aspen	15.5	34.9	51.5	38.5	28.9	5.0	3.9	.0	.9	.0	179.1
White oak	.7	.6	.0	.0	.0	.0	.0	.0	.0	.0	1.3
Red oaks	.2	.0	.5	.7	.0	2.0	.5	.0	.0	.0	3.9
Basswood	.5	1.4	.0	1.9	1.4	1.8	1.9	.0	.0	.0	8.9
Elm	.4	1.0	.0	.5	1.8	.7	3.6	.7	4.4	3.3	16.4
Other hardwoods	.7	.3	.8	.4	.5	.0	.0	.0	.0	.0	2.7
Total hardwoods	120.3	168.7	170.0	131.8	96.0	36.0	28.3	12.9	19.9	3.3	787.2
Total, all species	385.3	508.5	462.2	352.0	233.2	106.6	54.0	38.2	47.4	18.3	2,205.7

Table 98.--Net volume of growing-stock trees on timberland by species and diameter class, Piscataquis County, Maine, 1971

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	335.8	293.2	153.5	49.5	10.8	1.1	.0	.0	.0	.0	843.9
Tamarack	.8	1.6	.0	1.2	.0	.0	.0	.0	.0	.0	3.6
White spruce	18.3	22.2	13.5	17.1	9.6	5.2	1.8	.0	3.3	.0	91.0
Black spruce	15.6	20.8	6.7	1.2	.0	1.4	.0	1.0	.0	.0	46.7
Red spruce	289.3	232.4	182.1	140.4	81.5	54.8	33.1	12.7	4.3	.0	1,030.6
Red pine	.0	.7	1.0	.0	.0	.0	.0	1.2	.0	.0	2.9
White pine	11.6	21.9	13.0	18.6	13.7	10.1	8.9	11.2	45.6	7.4	162.0
Northern white-cedar	28.6	56.2	50.3	42.9	25.4	15.4	10.3	1.3	7.4	1.6	239.4
Hemlock	12.8	11.7	11.7	14.0	6.6	4.8	8.6	3.0	7.9	.0	81.1
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	712.8	660.7	431.8	284.9	147.6	92.8	62.7	30.4	68.5	9.0	2,501.2
Sugar maple	23.0	20.2	33.0	30.5	42.7	28.5	35.0	22.8	34.2	.7	270.6
Red maple	34.9	41.3	32.5	17.0	21.6	8.3	6.6	.7	4.6	.0	167.5
Yellow birch	14.1	18.1	13.4	29.1	18.7	7.1	13.6	9.6	12.8	.0	136.5
Paper birch	19.6	24.9	21.3	15.6	6.5	3.4	4.4	1.9	.0	.0	97.6
Gray birch	.0	2.7	.9	.0	.0	.0	.0	.0	.0	.0	3.6
Beech	24.0	32.7	40.6	14.7	16.4	10.0	2.7	3.5	4.1	.0	148.7
White ash	3.6	5.3	6.8	5.9	.0	5.6	2.3	.0	.0	.0	29.5
Black ash	2.6	2.6	3.3	3.4	2.1	1.0	.0	.0	.0	.0	15.0
Aspen	13.0	11.8	12.3	5.2	2.4	.0	1.8	.0	.0	.0	46.5
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	1.5	.0	.0	.0	.9	.0	1.6	2.7	.6	.0	7.3
Basswood	.0	.0	.8	1.0	2.1	1.3	.0	2.0	.0	.0	7.2
Elm	.5	.8	2.4	3.3	1.9	1.1	1.7	1.7	3.2	.0	16.6
Other hardwoods	.0	.0	.0	.8	.0	.0	.0	.0	.0	.0	.8
Total hardwoods	136.8	160.4	167.3	126.5	115.3	66.3	69.7	44.9	59.5	.7	947.4
Total, all species	849.6	821.1	599.1	411.4	262.9	159.1	132.4	75.3	128.0	9.7	3,448.6

Table 99.--Net volume of growing-stock trees on timberland by species and diameter class, Piscataquis County, Maine, 1982

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	183.0	248.5	157.4	61.4	15.9	4.1	.0	.0	.0	.0	670.3
Tamarack	4.0	1.3	3.6	2.2	.7	.0	.0	.0	.0	.0	11.8
White spruce	18.8	20.8	22.1	13.5	5.5	1.3	2.7	.8	.0	.0	85.5
Black spruce	16.9	15.1	17.4	14.4	12.1	3.8	1.2	.0	.0	.0	80.9
Red spruce	215.9	271.3	233.7	152.6	132.1	66.2	36.0	17.6	8.9	.0	1,134.3
Red pine	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
White pine	7.5	7.7	13.5	14.4	7.0	14.8	16.1	7.6	40.8	25.9	155.3
Northern white-cedar	14.6	39.4	51.3	50.0	41.6	30.6	12.0	15.7	6.9	.0	262.1
Hemlock	9.0	13.4	14.7	11.4	6.2	6.3	2.2	4.2	1.2	.0	68.6
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	469.7	617.5	513.7	319.9	221.1	127.1	70.2	45.9	57.8	25.9	2,468.8
Sugar maple	11.5	24.9	30.5	36.6	30.2	19.1	26.2	18.7	25.2	.8	223.7
Red maple	31.9	48.5	48.1	42.3	19.7	16.2	10.9	4.0	1.8	5.6	229.0
Yellow birch	10.0	18.5	27.7	25.0	15.7	17.6	10.6	6.5	9.4	.6	141.6
Paper birch	22.5	22.0	22.1	13.6	7.2	5.4	1.5	.0	.6	.0	94.9
Gray birch	1.4	.4	.8	.0	.0	.0	.0	.0	.0	.0	2.6
Beech	13.4	16.9	18.5	20.5	14.1	5.9	2.9	.0	.0	.0	92.2
White ash	2.0	6.7	5.5	3.0	2.9	1.3	1.1	.9	.0	.0	23.4
Black ash	4.0	6.8	4.0	1.8	2.9	1.0	1.2	.0	.0	.0	21.7
Aspen	6.8	27.6	37.8	23.5	19.9	11.7	4.8	6.1	2.4	.0	140.6
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	.0	.0	.0	.0	.8	.0	.7	1.9	2.0	.0	5.4
Basswood	.0	1.3	.9	1.9	1.0	.0	.0	.0	.0	.0	5.1
Elm	.0	.0	.9	.0	.0	.0	.0	.0	.0	.0	.9
Other hardwoods	.0	.0	.0	1.0	.0	.0	.0	.0	.0	.0	1.0
Total hardwoods	103.5	173.6	196.8	169.2	114.4	78.2	59.9	38.1	41.4	7.0	982.1
Total, all species	573.2	791.1	710.5	489.1	335.5	205.3	130.1	84.0	99.2	32.9	3,450.9

Table 100.--Net volume of growing-stock trees on timberland by species and diameter class, Somerset County, Maine, 1971

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	313.2	378.1	168.4	63.8	13.0	.8	1.0	.0	.0	.0	938.3
Tamarack	1.0	1.0	.8	1.0	.0	.0	.0	.0	.0	.0	3.8
White spruce	20.7	18.9	21.4	25.2	10.1	6.0	2.6	2.8	.0	.0	107.7
Black spruce	4.9	3.4	1.0	.0	1.2	.0	.0	.0	.0	.0	10.5
Red spruce	194.3	209.1	137.2	78.0	35.6	14.7	9.2	3.1	1.3	.0	682.5
Red pine	.7	.0	.0	.9	.0	.0	.0	.0	.0	.0	1.6
White pine	5.3	7.3	6.8	4.9	7.0	3.2	.0	3.1	10.2	4.0	51.8
Northern white-cedar	26.9	32.7	27.1	20.0	15.9	8.9	8.6	2.5	2.4	.0	145.0
Hemlock	11.6	15.6	17.9	8.3	10.0	5.1	5.0	2.2	1.5	.0	77.2
Other softwoods	.0	.0	1.6	.0	.0	.0	.0	.0	.0	.0	1.6
Total softwoods	578.6	666.1	382.2	202.1	92.8	38.7	26.4	13.7	15.4	4.0	2,020.0
Sugar maple	22.9	25.0	28.5	52.0	35.3	32.9	21.2	18.1	29.5	.0	265.4
Red maple[a]	48.0	48.8	58.7	17.3	17.0	11.7	5.1	2.7	1.4	.0	210.7
Yellow birch	23.9	23.6	32.7	25.2	22.5	21.1	11.9	9.6	13.0	.0	183.5
Paper birch	34.1	42.1	33.0	16.0	13.0	2.6	5.4	1.1	.6	.0	147.9
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	9.2	15.2	15.9	12.6	9.2	10.4	1.7	2.3	.1	.0	76.6
White ash	4.2	5.2	4.6	2.2	1.0	.0	.0	.0	.0	.0	17.2
Black ash	3.3	1.5	1.1	2.0	.9	.0	.0	.0	.0	.0	8.8
Aspen	19.5	24.7	29.4	11.2	6.8	3.8	1.3	.0	.0	.0	96.7
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	.0	.0	.8	.0	.0	.0	.0	.0	.0	.0	.8
Basswood	1.2	3.3	2.1	3.5	2.0	1.6	.0	2.9	.0	.0	16.6
Elm	1.3	3.3	2.2	2.5	.0	.0	1.0	1.0	.0	.0	11.3
Other hardwoods	.9	.0	.0	.0	.0	.8	.0	.0	1.2	.0	2.9
Total hardwoods	168.5	192.7	209.0	144.5	107.7	84.9	47.6	37.7	45.8	.0	1,038.4
Total, all species	747.1	858.8	591.2	346.6	200.5	123.6	74.0	51.4	61.2	4.0	3,058.4

[a]Includes 1.4 million cubic feet of silver maple.

Table 101.--Net volume of growing-stock trees on timberland by species and diameter class, Somerset County, Maine, 1982

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	190.2	299.5	207.7	77.6	32.2	12.6	.0	.0	.0	.0	819.8
Tamarack	1.3	.0	1.3	.7	.0	1.1	.0	.0	.0	.0	4.4
White spruce	21.3	17.1	15.1	7.5	4.8	2.9	.0	.0	.0	.0	68.7
Black spruce	26.8	20.6	9.7	2.1	1.7	.9	.0	.0	.0	.0	61.8
Red spruce	143.8	206.1	171.4	120.3	71.9	31.9	17.7	5.3	5.5	1.0	774.9
Red pine	.8	3.2	3.2	2.6	.0	.0	.8	.0	.0	.0	10.6
White pine	7.3	13.7	15.3	16.1	14.8	8.3	11.7	10.5	13.7	2.1	113.5
Northern white-cedar	12.5	42.0	48.1	43.9	36.5	19.0	9.1	3.1	4.0	.0	218.2
Hemlock	13.7	18.3	16.1	11.6	11.0	14.6	7.7	.8	8.7	.8	103.3
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	417.7	620.5	487.9	282.4	172.9	91.3	47.0	19.7	31.9	3.9	2,175.2
Sugar maple	21.9	43.3	47.8	55.5	42.5	31.6	20.9	18.0	27.5	4.4	313.4
Red maple	38.2	50.6	56.1	31.6	26.7	13.9	11.5	10.0	1.1	.0	239.7
Yellow birch	15.5	30.9	31.9	29.3	27.8	24.1	16.4	7.6	23.5	.8	207.8
Paper birch	50.1	52.3	40.2	30.9	13.1	4.8	2.2	.0	.9	.0	194.5
Gray birch	7.0	3.2	.8	.5	.7	.0	.0	.0	.0	.0	12.2
Beech	13.7	16.5	13.1	18.6	8.8	6.8	4.7	.0	2.1	.0	84.3
White ash	2.7	8.6	9.6	7.1	.9	.0	1.0	.0	.0	.0	29.9
Black ash	2.8	3.7	3.0	2.7	.8	.0	.0	.0	.0	.0	13.0
Aspen	23.0	33.0	26.8	20.6	13.7	6.6	5.4	5.9	.0	.0	135.0
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	1.1	.4	2.2	.0	.7	.0	.0	.0	2.5	.0	6.9
Basswood	.0	.0	.7	.6	.0	.0	.7	.0	.0	.0	2.0
Elm	.8	.0	1.4	.0	1.9	.0	.0	.0	.0	.0	4.1
Other hardwoods	1.0	1.5	.0	.7	.0	.0	.0	.0	.0	.0	3.2
Total hardwoods	177.8	244.0	233.6	198.1	137.6	87.8	62.8	41.5	57.6	5.2	1,246.0
Total, all species	595.5	864.5	721.5	480.5	310.5	179.1	109.8	61.2	89.5	9.1	3,421.2

Table 102.--Net volume of growing-stock trees on timberland by species and diameter class, Washington County, Maine, 1971

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	118.3	97.5	24.5	9.5	2.2	.0	.0	.0	.0	.0	252.0
Tamarack	9.0	10.8	7.8	2.3	5.3	.0	.0	.0	.0	.0	35.2
White spruce	4.9	4.9	3.6	2.8	2.1	.7	.0	.0	.0	.0	19.0
Black spruce	13.9	12.4	1.6	.8	.0	1.1	.0	.0	.0	.0	29.8
Red spruce	112.5	137.6	106.0	70.1	37.9	11.4	6.3	1.9	.9	.0	484.6
Red pine	.0	.8	1.2	1.8	1.8	3.5	.0	1.1	.0	.0	10.2
White pine	1.3	3.6	5.8	9.8	8.5	7.3	8.7	8.9	7.3	1.5	62.7
Northern white-cedar	29.7	33.0	23.6	14.0	3.1	.5	1.4	.7	.0	.0	106.0
Hemlock	23.3	26.0	25.1	22.0	7.4	10.2	6.6	.7	1.0	.0	122.3
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	312.9	326.6	199.2	133.1	68.3	34.7	23.0	13.3	9.2	1.5	1,121.8
Sugar maple	5.4	1.2	2.6	2.5	2.6	3.5	.7	1.6	1.0	.0	21.1
Red maple	32.2	49.7	49.9	31.4	22.0	12.4	6.3	.0	.0	.0	203.9
Yellow birch	4.1	9.5	3.5	3.1	2.0	1.0	1.0	1.5	.0	.0	25.7
Paper birch	20.7	27.9	22.6	11.5	6.5	1.2	1.2	.0	.0	.0	91.6
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	3.3	5.3	2.7	1.0	1.5	.7	.0	.0	.0	.0	14.5
White ash	1.1	.0	1.5	1.7	1.8	3.2	.0	.0	2.2	.0	11.5
Black ash	1.5	.0	3.7	1.2	1.1	2.9	.0	.0	.0	.0	10.4
Aspen	9.4	21.8	16.0	9.6	3.1	.8	.0	.0	.0	.0	60.7
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	4.4	2.2	2.3	1.8	.0	.5	.0	1.3	.0	.0	12.5
Basswood	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Elm	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0	.5
Other hardwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total hardwoods	82.1	118.1	104.8	63.8	40.6	26.2	9.2	4.4	3.2	.0	452.4
Total, all species	395.0	444.7	304.0	196.9	108.9	60.9	32.2	17.7	12.4	1.5	1,574.2

Table 103.--Net volume of growing-stock trees on timberland by species and diameter class, Washington County, Maine, 1982

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	58.4	45.9	27.2	6.2	.8	1.0	.0	.0	.0	.0	139.5
Tamarack	1.0	3.2	1.9	3.6	.0	1.1	.6	.0	.6	.0	12.0
White spruce	13.9	15.2	11.7	2.6	1.9	.0	.0	.0	.0	.0	45.3
Black spruce	15.4	5.8	3.5	2.1	.0	.0	.0	.0	.0	.0	26.8
Red spruce	66.9	99.2	89.4	71.0	39.1	19.8	14.3	2.2	4.2	.0	406.1
Red pine	.3	.0	.3	.5	3.0	.0	.0	.0	.0	.0	4.1
White pine	2.0	1.2	6.4	10.6	8.3	9.0	4.3	6.1	7.9	2.0	57.8
Northern white-cedar	23.1	24.8	28.8	18.1	11.5	1.9	.0	1.3	.0	.0	109.5
Hemlock	18.4	30.8	34.5	29.1	15.2	8.4	3.9	2.6	.8	.0	143.7
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	199.4	226.1	203.7	143.8	79.8	41.2	23.1	12.2	13.5	2.0	944.8
Sugar maple	4.1	5.2	2.8	4.2	1.2	.7	2.5	.0	7.9	.8	29.4
Red maple	25.2	36.8	23.3	23.2	18.5	3.5	.8	2.5	.9	.0	134.7
Yellow birch	4.8	5.9	5.9	3.6	2.6	1.2	1.0	.0	.7	.0	25.7
Paper birch	22.3	27.8	14.5	12.1	6.0	2.3	.0	.0	.0	.0	85.0
Gray birch	1.5	1.1	.0	.0	.0	.0	.0	.0	.0	.0	2.6
Beech	3.9	4.7	2.0	3.4	3.2	3.4	.0	.0	.0	.0	20.6
White ash	.1	1.9	1.8	.5	.0	1.0	.0	.0	.0	.0	5.3
Black ash	1.6	2.7	1.9	1.1	.5	.7	.0	.0	.0	.0	8.5
Aspen	17.3	12.9	11.8	20.4	14.9	9.0	2.1	4.6	.0	.0	93.0
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	.4	3.2	3.4	2.2	.0	.0	.0	.0	.0	.0	9.2
Basswood	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Elm	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Other hardwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total hardwoods	81.2	102.2	67.4	70.7	46.9	21.8	6.4	7.1	9.5	.8	414.0
Total, all species	280.6	328.3	271.1	214.5	126.7	63.0	29.5	19.3	23.0	2.8	1,358.8

Table 104.--Net volume of growing-stock trees on timberland by species and diameter class, Western Maine, 1971

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	171.4	191.0	115.5	33.7	12.9	6.0	1.4	.0	.0	.0	531.9
Tamarack	.0	1.0	.0	.0	3.2	1.2	.0	.8	.0	.0	6.2
White spruce	16.4	19.1	15.2	14.5	1.1	2.5	.0	1.5	1.6	.0	71.9
Black spruce	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
Red spruce	91.2	101.0	73.3	32.4	24.8	10.3	12.4	1.3	2.7	.0	349.4
Red pine	.0	.0	.9	2.0	2.2	1.2	.0	.0	.0	.0	6.3
White pine	13.2	28.2	28.9	43.2	30.2	31.2	10.4	12.8	20.7	4.3	223.1
Northern white-cedar	5.2	13.5	9.3	4.7	.0	.9	.9	.8	.0	.0	35.3
Hemlock	16.5	17.5	22.4	25.3	18.1	12.7	2.6	.0	1.1	.0	116.2
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	314.1	371.3	265.5	155.8	92.5	66.0	27.7	17.2	26.1	4.3	1,340.5
Sugar maple	24.4	24.1	30.5	27.1	25.3	17.3	22.7	8.4	11.3	.0	191.1
Red maple	37.7	66.7	43.1	35.6	18.5	11.4	6.3	4.4	6.5	.0	230.2
Yellow birch	29.3	21.6	32.8	45.2	32.8	18.1	17.0	6.8	12.8	3.2	219.6
Paper birch	45.6	46.7	56.9	17.5	16.9	5.9	5.7	1.9	1.0	.0	198.1
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	24.7	24.9	24.3	16.5	6.1	6.2	.0	.0	.0	.0	102.7
White ash	1.4	9.5	5.0	2.4	4.6	2.1	1.4	1.1	.0	.0	27.5
Black ash	.0	.0	.0	.0	3.1	.0	.0	.0	.0	.0	3.1
Aspen	16.0	46.1	28.9	21.6	7.9	4.6	6.2	.0	.0	.0	131.3
White oaks	1.8	.0	.0	.0	.0	.0	.9	.0	.0	.0	2.7
Red oaks	2.9	12.6	14.8	8.5	12.3	2.8	5.3	6.7	6.6	.0	72.5
Basswood	.6	.0	.0	2.1	.0	1.2	.0	1.7	1.1	.0	6.7
Elm	.5	.5	.0	.0	.8	.0	.0	.0	.0	.0	1.8
Other hardwoods	.6	.9	.0	1.5	.7	.0	.0	.0	.0	.0	3.7
Total hardwoods	185.5	253.6	236.3	178.0	129.0	69.6	65.5	31.0	39.3	3.2	1,191.0
Total, all species	499.6	624.9	501.8	333.8	221.5	135.6	93.2	48.2	65.4	7.5	2,531.5

Table 105.--Net volume of growing-stock trees on timberland by species and diameter class, Western Maine, 1982

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	138.6	181.2	137.2	89.0	36.9	6.4	1.0	.0	.0	.0	590.3
Tamarack	.2	.0	1.4	.0	.0	.0	.0	.0	.0	.0	1.6
White spruce	6.1	15.6	11.5	5.1	4.0	1.9	.0	.0	.0	.0	44.2
Black spruce	2.3	8.9	10.0	.8	3.9	.0	.0	.0	.0	.0	25.9
Red spruce	77.5	113.8	94.3	64.8	32.2	20.0	13.6	3.3	3.2	1.1	423.8
Red pine	.9	1.1	.9	1.4	2.7	4.1	1.0	1.0	.0	.0	13.1
White pine	21.3	37.5	45.7	39.4	48.4	29.8	30.5	10.5	9.9	7.2	280.2
Northern white-cedar	3.2	3.5	2.5	3.1	3.0	1.8	3.0	.7	2.1	.0	22.9
Hemlock	15.3	24.0	23.2	26.9	22.4	16.0	1.7	2.4	.0	.0	131.9
Other softwoods	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
Total softwoods	265.6	385.6	326.7	230.5	153.5	80.0	50.8	17.9	15.2	8.3	1,534.1
Sugar maple	18.7	34.4	31.1	30.4	15.9	9.3	4.3	6.2	6.1	.0	156.4
Red maple	57.4	76.4	73.1	51.2	22.6	10.3	10.0	4.6	8.1	.0	313.7
Yellow birch	16.5	35.0	52.9	51.7	34.7	29.3	14.1	14.3	28.3	1.3	278.1
Paper birch	54.2	102.7	76.9	44.0	16.7	12.3	7.1	1.8	.0	.0	315.7
Gray birch	5.7	4.2	2.9	1.2	1.0	.8	.0	.0	.0	.0	15.8
Beech	17.9	25.7	28.5	15.2	9.5	6.1	2.8	.0	.0	.0	105.7
White ash	6.8	16.0	15.1	10.6	8.3	2.9	3.3	2.7	4.0	.0	69.7
Black ash	1.5	1.8	.8	.7	.0	.0	.0	.0	.0	.0	4.8
Aspen	28.1	52.6	44.9	28.1	8.6	4.7	1.0	.0	.0	.0	168.0
White oaks	.5	.6	.0	.0	.0	.0	.0	.0	.0	.0	1.1
Red oaks	8.0	10.3	9.7	8.8	7.7	4.5	.8	1.5	.8	1.1	53.2
Basswood	.6	.0	.9	.6	.0	.0	.0	1.6	.0	.0	3.7
Elm	1.2	1.0	.0	.0	.6	1.1	.0	.0	.0	.0	3.9
Other hardwoods	1.8	1.6	1.0	.0	.0	.0	.0	.0	.0	.0	4.4
Total hardwoods	218.9	362.3	337.8	242.5	125.6	81.3	43.4	32.7	47.3	2.4	1,494.2
Total, all species	484.5	747.9	664.5	473.0	279.1	161.3	94.2	50.6	62.5	10.7	3,028.3

Table 106.--Net volume of sawtimber trees on timberland by species and diameter class, Aroostook County, Maine, 1971

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	1,340.2	649.2	244.4	64.4	21.5	8.6	.0	.0	2,328.
Tamarack	21.9	34.3	14.2	5.4	.0	.0	.0	.0	75.
White spruce	217.0	149.4	74.4	60.4	49.2	3.9	7.7	.0	562.
Black spruce	26.7	.0	.0	.0	.0	.0	.0	.0	26.
Red spruce	871.0	812.2	613.9	378.8	218.9	89.5	64.0	.0	3,048.
Red pine	.0	.0	.0	.0	.0	.0	.0	.0	.
White pine	8.0	16.8	35.9	17.6	42.2	26.0	77.0	7.4	230.
Northern white-cedar	221.9	182.9	93.4	76.2	23.9	1.4	7.5	.0	607.
Hemlock	44.8	47.5	49.6	21.1	30.6	23.4	41.9	.0	258.
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.
Total softwoods	2,751.5	1,892.3	1,125.8	623.9	386.3	152.8	198.1	7.4	7,138.
Sugar maple	.0	148.3	200.7	227.7	95.7	127.9	213.0	5.4	1,018.
Red maple	.0	144.7	127.6	114.6	30.2	22.9	13.0	.0	453.
Yellow birch	.0	107.5	97.9	61.2	33.4	38.0	27.8	.0	365.
Paper birch	.0	63.5	30.9	15.4	7.6	.0	10.1	.0	127.
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.
Beech	.0	203.1	154.8	69.1	50.5	5.0	2.0	.0	484.
White ash	.0	16.3	12.9	22.8	.0	5.0	.0	.0	57.
Black ash	.0	44.1	20.6	9.3	5.6	.0	.0	.0	79.
Aspen	.0	228.9	126.3	64.1	36.9	7.2	.0	.0	463.
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.
Red oaks	.0	.0	.0	.0	.0	.0	.0	.0	.
Basswood	.0	.0	.0	3.2	.0	.0	.0	.0	3.
Elm	.0	3.4	8.3	.0	.0	.0	.0	.0	11.
Other hardwoods	.0	.0	.0	.0	.0	.0	.0	.0	.
Total hardwoods	.0	959.8	780.0	587.4	259.9	206.0	265.9	5.4	3,064.
Total, all species	2,751.5	2,852.1	1,905.8	1,211.3	646.2	358.8	464.0	12.8	10,202.

[a]International 1/4-inch rule.

Table 107.--Net volume of sawtimber trees on timberland by species and diameter class, Aroostook County, Maine, 1982

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
alsam fir	1,196.8	669.5	206.7	72.3	21.3	7.4	.0	.0	2,174.0
amarack	24.1	26.3	22.5	13.1	28.8	9.9	2.8	.0	127.5
nite spruce	216.3	194.0	89.0	47.9	3.0	.0	17.4	.0	567.6
lack spruce	138.0	46.5	16.7	.0	.0	6.8	.0	.0	208.0
ed spruce	843.9	819.6	588.6	318.8	155.9	110.3	42.9	.0	2,880.0
ed pine	.0	.0	.0	.0	.0	.0	.0	.0	.0
nite pine	5.1	26.1	25.1	30.2	18.7	23.6	61.7	38.3	228.8
orthern white-cedar	375.1	453.2	319.6	192.2	83.0	57.0	41.0	.0	1,521.1
emlock	36.1	62.3	33.7	46.8	20.2	25.7	45.6	4.3	274.7
ther softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	2,835.4	2,297.5	1,301.9	721.3	330.9	240.7	211.4	42.6	7,981.7
igar maple	.0	160.7	218.8	163.1	202.7	179.1	272.3	17.1	1,213.8
ed maple	.0	93.1	84.6	50.7	32.5	24.9	.0	.0	285.8
ellow birch	.0	126.5	95.7	83.6	43.3	18.4	30.4	.0	397.9
iper birch	.0	45.3	14.5	14.8	4.7	.0	.0	.0	79.3
ay birch	.0	.0	.0	.0	.0	.0	.0	.0	.0
eech	.0	143.5	147.3	116.0	28.0	19.1	24.6	.0	478.5
nite ash	.0	8.7	.0	6.7	.0	3.8	8.3	.0	27.5
lack ash	.0	25.4	18.3	9.3	2.8	9.0	5.8	.0	70.6
spen	.0	288.1	154.8	87.9	32.6	10.3	16.4	15.8	605.9
nite oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0
ed oaks	.0	1.6	1.5	.0	.0	.0	.0	.0	3.1
sswood	.0	.0	.0	.0	.0	.0	.0	.0	.0
m	.0	4.2	2.2	.0	.0	.0	2.7	.0	9.1
her hardwoods	.0	3.1	.0	.0	.0	.0	.0	.0	3.1
Total hardwoods	.0	900.2	737.7	532.1	346.6	264.6	360.5	32.9	3,174.6
tal, all species	2,835.4	3,197.7	2,039.6	1,253.4	677.5	505.3	571.9	75.5	11,156.3

[a]International 1/4-inch rule.

Table 108.--Net volume of sawtimber trees on timberland by species and diameter class, Capital Region, Maine, 1971

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	58.4	15.4	.0	.0	.0	.0	.0	.0	73.8
Tamarack	5.4	4.3	9.8	.0	.0	.0	.0	.0	19.5
White spruce	18.9	10.0	.0	8.7	.0	9.2	10.0	.0	56.8
Black spruce	.0	3.6	8.0	.0	.0	.0	.0	.0	11.6
Red spruce	53.5	55.6	31.4	3.4	.0	.0	.0	.0	143.9
Red pine	.0	5.4	.0	5.6	.0	.0	.0	.0	11.0
White pine	88.6	86.7	92.4	70.2	32.6	64.4	99.7	32.7	567.3
Northern white-cedar	20.7	16.9	1.6	.0	.0	.0	.0	.0	39.2
Hemlock	65.6	87.2	51.2	51.7	2.2	2.3	.0	4.6	264.8
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	311.1	285.1	194.4	139.6	34.8	75.9	109.7	37.3	1,187.9
Sugar maple	.0	15.0	14.6	11.3	17.6	.0	.0	.0	58.9
Red maple	.0	66.1	49.9	10.5	16.1	9.0	.0	8.3	159.9
Yellow birch	.0	19.7	14.6	20.4	3.9	.0	8.5	.0	67.1
Paper birch	.0	32.1	23.8	5.6	.0	2.4	.0	.0	63.9
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	.0	3.9	11.4	.0	.0	.0	.0	.0	15.3
White ash	.0	19.3	10.2	.0	.0	.0	.0	.0	29.5
Black ash	.0	4.0	.0	5.4	.0	.0	.0	.0	9.4
Aspen	.0	24.5	10.6	.0	.0	.0	.0	.0	35.1
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	.0	42.0	35.5	11.1	3.2	6.1	.0	4.0	101.9
Basswood	.0	19.4	8.6	2.2	.0	.0	.0	.0	30.2
Elm	.0	27.8	8.2	16.4	22.5	24.6	20.9	8.3	128.7
Other hardwoods	.0	2.4	.0	.0	.0	.0	.0	.0	2.4
Total hardwoods	.0	276.2	187.4	82.9	63.3	42.1	29.4	20.6	701.9
Total, all species	311.1	561.3	381.8	222.5	98.1	118.0	139.1	57.9	1,889.8

[a]International 1/4-inch rule.

Table 109.--Net volume of sawtimber trees on timberland by species and diameter class, Capital Region, Maine, 1982

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
alsam fir	47.1	12.8	3.4	1.2	.0	.0	.0	.0	64.5
amarack	8.9	13.7	13.8	10.1	3.4	.0	.0	.0	49.9
hite spruce	10.6	15.3	8.3	2.0	.0	5.0	.0	.0	41.2
lack spruce	.8	.0	.0	.0	.0	.0	.0	.0	.8
ed spruce	128.9	122.4	108.8	59.2	24.0	6.0	12.8	.0	462.1
ed pine	.3	1.4	1.4	1.8	.0	.0	.0	.0	4.9
hite pine	110.6	169.2	165.5	113.5	109.4	88.9	167.0	76.0	1,000.1
orthern white-cedar	21.7	12.2	4.0	1.2	.0	.0	.0	.0	39.1
emlock	91.9	88.4	102.8	66.9	29.5	13.3	20.0	2.3	415.1
ther softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	420.8	435.4	408.0	255.9	166.3	113.2	199.8	78.3	2,077.7
ugar maple	.0	11.0	5.8	3.8	8.2	.0	1.6	.0	30.4
ed maple	.0	124.2	57.7	37.7	34.5	20.0	16.4	11.3	301.8
ellow birch	.0	11.5	5.6	7.2	1.5	.0	.0	.0	25.8
aper birch	.0	42.8	14.4	6.2	1.7	.0	.0	.0	65.1
ray birch	.0	.6	.0	1.3	1.4	.0	.0	.0	3.3
eech	.0	17.8	4.6	3.7	3.2	.0	.0	.0	29.3
hite ash	.0	14.2	10.1	12.4	9.3	.0	5.4	.0	51.4
lack ash	.0	.0	.0	.0	.0	.0	.0	.0	.0
spen	.0	60.5	36.1	8.4	1.5	.0	.0	.0	106.5
hite oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0
ed oaks	.0	79.2	49.4	46.4	23.1	15.0	28.1	1.6	242.8
asswood	.0	3.2	2.2	3.6	2.6	.0	.0	.0	11.6
lm	.0	1.3	.8	.0	.0	.0	.0	.0	2.1
ther hardwoods	.0	4.3	3.5	5.2	.0	.0	2.3	.0	15.3
Total hardwoods	.0	370.6	190.2	135.9	87.0	35.0	53.8	12.9	885.4
otal, all species	420.8	806.0	598.2	391.8	253.3	148.2	253.6	91.2	2,963.1

[a]International 1/4-inch rule.

Table 110.--Net volume of sawtimber trees on timberland by species and diameter class, Casco Bay, Maine, 1971

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	9.6	13.2	.0	.0	.0	.0	.0	.0	22.8
Tamarack	.0	.0	.0	.0	.0	.0	.0	.0	.0
White spruce	.0	.0	.0	.0	.0	.0	.0	.0	.0
Black spruce	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red spruce	62.9	17.6	9.1	7.5	.0	4.0	.0	.0	101.1
Red pine	.0	5.2	.0	.0	.0	.0	.0	.0	5.2
White pine	296.5	458.1	407.9	302.7	201.1	97.7	191.0	46.1	2,001.1
Northern white-cedar	.0	.0	.0	.0	.0	.0	.0	.0	.0
Hemlock	144.5	94.7	125.4	104.4	45.0	15.5	7.5	.0	537.0
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	513.5	588.8	542.4	414.6	246.1	117.2	198.5	46.1	2,667.2
Sugar maple	.0	.0	.0	.0	8.5	.0	21.5	.0	30.0
Red maple	.0	40.8	34.0	23.5	3.3	.0	.0	6.8	108.4
Yellow birch	.0	11.5	10.4	.0	4.3	.0	.0	.0	26.2
Paper birch	.0	24.7	9.9	5.0	.0	.0	.0	4.6	44.2
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	.0	6.0	9.5	13.9	.0	.0	4.1	.0	33.5
White ash	.0	7.7	.0	.0	.0	6.3	.0	6.5	20.5
Black ash	.0	.0	.0	.0	.0	.0	.0	.0	.0
Aspen	.0	5.0	.0	.0	.0	.0	.0	.0	5.0
White oaks	.0	5.9	.0	4.5	.0	.0	.0	4.2	14.6
Red oaks	.0	109.1	74.5	57.5	38.9	15.1	24.4	.0	319.
Basswood	.0	5.0	.0	.0	.0	.0	.0	.0	5.0
Elm	.0	.0	.0	9.8	.0	.0	.0	.0	9.8
Other hardwoods	.0	2.8	.0	.0	.0	.0	.0	.0	2.8
Total hardwoods	.0	218.5	138.3	114.2	55.0	21.4	50.0	22.1	619.5
Total, all species	513.5	807.3	680.7	528.8	301.1	138.6	248.5	68.2	3,286.7

[a]International 1/4-inch rule.

Table 111.--Net volume of sawtimber trees on timberland by species and diameter class, Casco Bay, Maine, 1982

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
alsam fir	41.2	13.1	3.7	.0	.0	.0	.0	.0	58.0
amarack	2.2	4.5	2.6	.0	.0	.0	.0	.0	9.3
nite spruce	.0	.0	.0	.0	.0	.0	.0	.0	.0
lack spruce	.0	.8	.0	.0	.0	.0	.0	.0	.8
ed spruce	33.8	22.6	18.0	7.2	.0	.0	.0	.0	81.6
ed pine	13.1	17.1	7.9	3.9	.0	.0	.0	.0	42.0
nite pine	298.5	382.5	391.6	440.1	294.6	172.0	249.5	17.9	2,246.7
orthern white-cedar	4.2	2.1	.0	.0	.0	.0	.0	.0	6.3
emlock	154.7	212.3	208.3	133.5	88.4	26.5	44.4	.0	868.1
ther softwoods	5.6	8.4	12.9	4.3	1.3	.0	.0	.0	32.5
Total softwoods	553.3	663.4	645.0	589.0	384.3	198.5	293.9	17.9	3,345.3
igar maple	.0	6.2	13.6	6.2	3.1	.0	2.1	.0	31.2
ed maple	.0	99.5	54.2	17.4	13.3	6.8	5.0	.0	196.2
ellow birch	.0	6.4	1.8	.0	.0	1.4	.0	.0	9.6
aper birch	.0	26.4	15.1	4.9	.8	.0	3.6	.0	50.8
ay birch	.0	4.3	.0	.0	.0	.0	.0	.0	4.3
eech	.0	26.7	6.1	5.1	5.7	1.8	.0	.0	45.4
nite ash	.0	9.1	.0	4.4	4.1	5.9	.0	.0	23.5
lack ash	.0	.0	.0	.0	.0	.0	.0	.0	.0
spen	.0	27.6	14.6	5.3	.0	.0	1.9	.0	49.4
nite oaks	.0	3.6	5.4	9.5	.0	3.4	1.3	.0	23.2
ed oaks	.0	120.7	105.3	50.5	43.9	27.7	24.2	1.9	374.2
sswood	.0	.0	.9	.0	.0	.0	.0	.0	.9
m	.0	.0	.0	.0	.0	.0	.0	.0	.0
her hardwoods	.0	5.3	2.4	3.0	2.0	.0	.0	.0	12.7
Total hardwoods	.0	335.8	219.4	106.3	72.9	47.0	38.1	1.9	821.4
tal, all species	553.3	999.2	864.4	695.3	457.2	245.5	332.0	19.8	4,166.7

[a]International 1/4-inch rule.

Table 112.--Net volume of sawtimber trees on timberland by species and diameter class, Hancock County, Maine, 1971

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classe
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	26.1	6.3	.0	.0	.0	.0	.0	.0	32.
Tamarack	6.5	5.5	3.4	.0	.0	.0	.0	.0	15.
White spruce	27.5	17.1	3.9	5.0	.0	.0	.0	.0	53.
Black spruce	.0	6.1	.0	.0	.0	.0	.0	.0	6.
Red spruce	222.1	137.9	92.1	63.4	27.4	14.4	7.4	.0	564.
Red pine	4.3	.0	.0	.0	.0	.0	.0	.0	4.
White pine	18.4	.0	18.0	32.0	4.0	13.8	14.7	10.0	110
Northern white-cedar	53.2	28.2	16.1	.0	.0	.0	.0	.0	97
Hemlock	21.1	56.1	43.6	36.2	3.3	.0	1.6	.0	161
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	
Total softwoods	379.2	257.2	177.1	136.6	34.7	28.2	23.7	10.0	1,046
Sugar maple	.0	8.8	.0	.0	.0	.0	4.4	8.0	21
Red maple	.0	35.2	19.5	25.2	4.3	9.0	2.6	.0	95
Yellow birch	.0	15.8	4.4	4.4	5.6	3.2	.0	.0	33
Paper birch	.0	16.9	3.8	.0	.0	.0	.0	.0	20
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	
Beech	.0	6.0	2.7	12.4	2.4	.0	.0	.0	23
White ash	.0	7.9	5.3	4.9	.0	.0	5.8	.0	23
Black ash	.0	.0	.0	.0	.0	.0	.0	.0	
Aspen	.0	9.5	.0	.0	.0	.0	.0	.0	9
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	
Red oaks	.0	3.2	6.2	.0	.0	.0	.0	.0	9
Basswood	.0	.0	.0	3.7	.0	.0	.0	.0	3
Elm	.0	.0	.0	.0	.0	.0	.0	.0	
Other hardwoods	.0	.0	.0	.0	.0	.0	.0	.0	
Total hardwoods	.0	103.3	41.9	50.6	12.3	12.2	12.8	8.0	241
Total, all species	379.2	360.5	219.0	187.2	47.0	40.4	36.5	18.0	1,287

[a]International 1/4-inch rule.

Table 113.--Net volume of sawtimber trees on timberland by species and diameter class, Hancock County, Maine, 1982

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	34.4	16.2	3.4	.0	.0	.0	.0	.0	54.0
Tamarack	8.5	1.9	5.6	.0	4.3	.0	.0	.0	20.3
White spruce	3.9	4.8	7.6	.0	.0	.0	.0	.0	16.3
Black spruce	7.6	2.7	7.3	.0	.0	.0	.0	.0	17.6
Red spruce	240.3	230.0	138.5	90.1	31.4	15.8	34.1	.0	780.2
Red pine	5.7	9.3	7.2	.0	5.0	.0	.0	.0	27.2
White pine	20.0	41.3	24.4	50.6	5.1	24.4	52.5	44.6	262.9
Northern white-cedar	45.3	41.9	12.4	25.7	.0	.0	.0	.0	125.3
Hemlock	57.1	53.9	23.2	30.9	8.1	26.5	40.4	.0	240.1
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	422.8	402.0	229.6	197.3	53.9	66.7	127.0	44.6	1,543.9
Sugar maple	.0	2.5	4.7	7.9	4.0	.0	5.9	.0	25.0
Red maple	.0	40.2	21.3	26.5	10.1	.0	.0	.0	98.1
Yellow birch	.0	4.4	2.7	4.6	3.0	.0	.0	.0	14.7
Paper birch	.0	19.3	5.0	.0	.0	.0	.0	4.1	28.4	
Gray birch	.0	2.6	.0	.0	.0	.0	.0	.0	2.6
Beech	.0	3.5	2.4	.0	.0	.0	.0	.0	5.9
White ash	.0	10.9	10.3	.0	5.0	.0	.0	.0	26.2
Black ash	.0	5.1	2.7	.0	.0	.0	.0	.0	7.8
Aspen	.0	35.2	22.0	.0	.0	.0	.0	.0	57.2
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	.0	.0	3.2	5.4	3.3	.0	.0	.0	11.9
Basswood	.0	.0	.0	.0	.0	.0	.0	.0	.0
Elm	.0	.0	.0	.0	.0	.0	.0	.0	.0
Other hardwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total hardwoods	.0	123.7	74.3	44.4	25.4	.0	5.9	4.1	277.8
Total, all species	422.8	525.7	303.9	241.7	79.3	66.7	132.9	48.7	1,821.7

[a]International 1/4-inch rule.

Table 114.--Net volume of sawtimber trees on timberland by species and diameter class, Penobscot County, Maine, 1971

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	210.6	136.1	26.7	3.4	3.2	.0	.0	.0	380.0
Tamarack	5.6	3.4	.0	4.1	.0	.0	.0	.0	13.1
White spruce	28.8	23.2	.0	8.0	.0	.0	.0	.0	60.0
Black spruce	9.8	.0	2.5	.0	.0	.0	.0	.0	12.3
Red spruce	370.4	263.5	184.0	76.5	24.6	8.8	.0	.0	927.8
Red pine	3.3	.0	.0	.0	.0	.0	.0	.0	3.3
White pine	23.3	36.6	79.6	91.1	74.5	38.5	59.2	52.6	455.4
Northern white-cedar	93.4	68.0	22.3	7.8	1.9	.0	.0	.0	193.4
Hemlock	115.1	142.3	110.9	81.3	44.3	26.8	41.6	.0	562.3
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	860.3	673.1	426.0	272.2	148.5	74.1	100.8	52.6	2,607.6
Sugar maple	.0	31.3	41.9	35.7	66.7	46.6	63.2	13.6	299.0
Red maple	.0	152.6	93.3	109.3	39.9	27.1	17.1	.0	439.3
Yellow birch	.0	64.4	24.6	27.9	15.5	.0	6.2	.0	138.6
Paper birch	.0	18.7	28.6	23.9	2.6	4.1	3.7	.0	81.6
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.1
Beech	.0	42.7	44.9	18.9	4.2	4.3	.0	.0	115.0
White ash	.0	9.8	.0	10.0	11.0	.0	4.8	.0	35.6
Black ash	.0	11.5	23.7	22.7	3.9	.0	.0	.0	61.8
Aspen	.0	19.4	21.7	4.0	.0	.0	.0	.0	45.1
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	.0	.0	.0	3.1	3.6	.0	12.2	.0	18.9
Basswood	.0	10.1	3.0	.0	.0	.0	9.2	.0	22.3
Elm	.0	18.0	8.6	.0	3.8	2.1	4.3	6.1	42.9
Other hardwoods	.0	.0	.0	.0	.0	.0	2.5	.0	2.5
Total hardwoods	.0	378.5	290.3	255.5	151.2	84.2	123.2	19.7	1,302.6
Total, all species	860.3	1,051.6	716.3	527.7	299.7	158.3	224.0	72.3	3,910.2

[a]International 1/4-inch rule.

Table 115.--Net volume of sawtimber trees on timberland by species and diameter class, Penobscot County, Maine, 1982

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
lsam fir	135.1	44.7	2.8	3.9	.0	.0	.0	.0	186.5
marack	9.6	13.1	4.0	.0	.0	.0	.0	.0	26.7
ite spruce	16.9	13.0	15.5	13.8	2.9	7.8	.0	.0	69.9
ack spruce	11.2	5.4	3.2	.0	.0	.0	.0	.0	19.8
d spruce	411.2	348.1	247.3	84.1	13.5	10.5	9.4	.0	1,124.1
d pine	10.1	31.3	14.5	16.6	.0	.0	.0	.0	72.5
ite pine	39.9	62.8	77.3	81.8	68.5	52.2	83.3	80.6	546.4
rthern white-cedar	137.3	111.4	75.8	20.1	3.6	.0	.0	.0	348.2
mlock	178.4	231.1	141.2	94.1	23.8	46.9	35.6	.0	751.1
her softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	949.7	860.9	581.6	314.4	112.3	117.4	128.3	80.6	3,145.2
gar maple	.0	56.6	77.6	38.2	48.4	31.9	31.4	.0	284.1
d maple	.0	134.7	81.3	26.4	26.1	7.2	23.3	.0	299.0
llow birch	.0	27.5	23.4	24.8	5.4	3.3	10.4	.0	94.8
per birch	.0	48.9	20.5	10.4	.0	3.2	3.6	.0	86.6
ay birch	.0	.0	.0	.0	.0	.0	.0	.0	.0
ech	.0	59.7	47.5	11.3	3.4	.0	.0	.0	121.9
ite ash	.0	30.7	17.5	8.5	.0	.0	9.0	.0	65.7
ack ash	.0	14.5	9.5	.0	.0	9.9	.0	.0	33.9
pen	.0	162.3	127.6	24.6	16.7	.0	5.4	.0	336.6
ite oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0
d oaks	.0	2.8	.0	6.7	2.1	.0	.0	.0	11.6
sswood	.0	6.5	6.8	9.4	8.8	.0	.0	.0	31.5
m	.0	2.0	8.2	2.7	16.8	4.0	25.2	18.0	76.9
her hardwoods	.0	1.3	2.9	.0	.0	.0	.0	.0	4.2
Total hardwoods	.0	547.5	422.8	163.0	127.7	59.5	108.3	18.0	1,446.8
tal, all species	949.7	1,408.4	1,004.4	477.4	240.0	176.9	236.6	98.6	4,592.0

[a]International 1/4-inch rule.

Table 116.--Net volume of sawtimber trees on timberland by species and diameter class, Piscataquis County, Maine, 1971

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classe
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	500.7	186.6	41.1	5.7	.0	.0	.0	.0	734.
Tamarack	.0	4.6	.0	.0	.0	.0	.0	.0	4.
White spruce	44.3	70.6	35.9	22.7	9.0	.0	15.1	.0	197.
Black spruce	22.3	3.7	.0	4.3	.0	4.5	.0	.0	34.
Red spruce	591.2	510.5	314.3	217.4	125.3	51.1	14.4	.0	1,824.
Red pine	2.8	.0	.0	.0	.0	5.6	.0	.0	8.
White pine	44.3	74.0	60.6	50.5	46.3	55.6	246.3	41.8	619.
Northern white-cedar	114.5	117.9	71.0	48.0	29.3	4.6	22.0	6.5	413.
Hemlock	31.2	38.9	21.3	15.4	31.4	10.5	26.2	.0	174.
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	
Total softwoods	1,351.3	1,006.8	544.2	364.0	241.3	131.9	324.0	48.3	4,011.
Sugar maple	.0	124.9	183.5	122.6	155.5	112.4	166.2	3.5	868.
Red maple	.0	71.3	87.9	36.5	29.7	4.3	18.9	.0	248.
Yellow birch	.0	128.4	83.5	32.9	64.7	43.9	60.1	.0	413.
Paper birch	.0	66.8	31.9	16.8	20.9	7.6	.0	.0	144.
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	
Beech	.0	65.1	73.7	41.5	10.6	16.3	17.0	.0	224.
White ash	.0	22.0	.0	24.0	10.2	.0	.0	.0	56.
Black ash	.0	16.2	10.4	5.2	.0	.0	.0	.0	31.
Aspen	.0	19.3	10.1	.0	8.4	.0	.0	.0	37.
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	
Red oaks	.0	.0	4.9	.0	8.5	11.8	3.1	.0	28.
Basswood	.0	5.4	10.6	6.3	.0	11.0	.0	.0	33.
Elm	.0	14.2	8.1	5.7	7.5	9.0	15.8	.0	60.
Other hardwoods	.0	2.9	.0	.0	.0	.0	.0	.0	2.
Total hardwoods	.0	536.5	504.6	291.5	316.0	216.3	281.1	3.5	2,149.
Total, all species	1,351.3	1,543.3	1,048.8	655.5	557.3	348.2	605.1	51.8	6,161.

[a]International 1/4-inch rule.

Table 117.--Net volume of sawtimber trees on timberland by species and diameter class, Piscataquis County, Maine, 1982

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	556.5	259.6	69.2	19.3	.0	.0	.0	.0	904.6
Tamarack	10.6	6.8	2.5	.0	.0	.0	.0	.0	19.9
White spruce	75.3	57.5	24.5	5.7	12.5	4.0	.0	.0	179.5
Black spruce	56.4	62.0	58.5	19.3	6.5	.0	.0	.0	202.7
Red spruce	839.1	655.8	615.7	325.9	182.7	86.6	51.5	.0	2,757.3
Red pine	.0	.0	.0	.0	.0	.0	.0	.0	.0
White pine	44.4	55.0	31.0	69.7	78.7	39.8	217.8	148.8	685.2
Northern white-cedar	129.5	154.0	143.7	108.7	45.2	56.4	28.9	.0	666.4
Hemlock	47.8	43.8	23.1	26.9	10.4	18.3	6.5	.0	176.8
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	1,759.6	1,294.5	968.2	575.5	336.0	205.1	304.7	148.8	5,592.4
Sugar maple	.0	143.9	130.4	82.1	112.4	93.5	122.0	3.7	688.0
Red maple	.0	166.9	84.5	75.1	48.8	17.6	9.4	30.6	432.9
Yellow birch	.0	103.6	70.8	74.5	46.5	30.5	44.1	3.0	373.0
Paper birch	.0	52.7	33.8	25.2	7.5	.0	2.7	.0	121.9
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	.0	80.3	57.2	28.4	14.7	.0	.0	.0	180.6
White ash	.0	11.6	12.2	3.3	4.7	4.1	.0	.0	35.9
Black ash	.0	8.4	12.1	4.8	6.1	.0	.0	.0	31.4
Aspen	.0	91.2	85.8	51.7	21.9	30.3	12.1	.0	293.0
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	.0	.0	3.9	.0	2.7	9.2	8.0	.0	23.8
Basswood	.0	7.5	4.6	.0	.0	.0	.0	.0	12.1
Elm	.0	.0	.0	.0	.0	.0	.0	.0	.0
Other hardwoods	.0	3.5	.0	.0	.0	.0	.0	.0	3.5
Total hardwoods	.0	669.6	495.3	345.1	265.3	185.2	198.3	37.3	2,196.1
Total, all species	1,759.6	1,964.1	1,463.5	920.6	601.3	390.3	503.0	186.1	7,788.5

[a]International 1/4-inch rule.

Table 118.--Net volume of sawtimber trees on timberland by species and diameter class, Somerset County, Maine, 1971

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	580.3	255.3	54.8	3.2	4.6	.0	.0	.0	898.2
Tamarack	2.6	4.0	.0	.0	.0	.0	.0	.0	6.6
White spruce	73.4	94.8	44.0	26.2	10.4	11.3	.0	.0	260.1
Black spruce	3.8	.0	5.0	.0	.0	.0	.0	.0	8.8
Red spruce	473.5	303.7	148.2	65.3	41.7	12.6	7.0	.0	1,052.0
Red pine	.0	4.2	.0	.0	.0	.0	.0	.0	4.2
White pine	20.9	20.2	30.5	14.6	.0	17.0	53.1	20.3	176.6
Northern white-cedar	69.7	58.2	48.7	29.3	26.3	9.2	6.8	.0	248.2
Hemlock	52.5	29.8	37.9	16.2	19.2	7.5	5.4	.0	168.5
Other softwoods	4.6	.0	.0	.0	.0	.0	.0	.0	4.6
Total softwoods	1,281.3	770.2	369.1	154.8	102.2	57.6	72.3	20.3	2,827.8
Sugar maple	.0	212.3	155.2	152.4	100.8	84.6	154.4	.0	859.7
Red maple[b]	.0	64.2	71.1	49.8	21.4	12.6	5.0	.0	224.1
Yellow birch	.0	101.1	96.7	97.2	51.1	44.7	62.1	.0	452.9
Paper birch	.0	64.9	55.2	10.6	24.2	2.7	3.2	.0	160.8
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	.0	52.9	41.6	50.6	9.0	10.4	.8	.0	165.3
White ash	.0	9.6	5.4	.0	.0	.0	.0	.0	15.0
Black ash	.0	8.0	4.5	.0	.0	.0	.0	.0	12.5
Aspen	.0	44.1	29.3	15.0	6.4	.0	.0	.0	94.8
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0
Basswood	.0	15.6	8.4	7.2	.0	14.5	.0	.0	45.7
Elm	.0	8.9	.0	.0	5.1	5.3	.0	.0	19.3
Other hardwoods	.0	.0	.0	4.8	.0	.0	6.5	.0	11.3
Total hardwoods	.0	581.6	467.4	387.6	218.0	174.8	232.0	.0	2,061.4
Total, all species	1,281.3	1,351.8	836.5	542.4	320.2	232.4	304.3	20.3	4,889.2

[a] International 1/4-inch rule.
[b] Includes 5.0 million board feet of silver maple.

Table 119.--Net volume of sawtimber trees on timberland by species and diameter class, Somerset County, Maine, 1982

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	733.1	327.4	147.3	56.8	.0	.0	.0	.0	1,264.6
Tamarack	4.2	2.6	.0	4.7	.0	.0	.0	.0	11.5
White spruce	53.0	31.7	22.4	14.9	.0	.0	.0	.0	122.0
Black spruce	33.0	8.5	6.9	4.1	.0	.0	.0	.0	52.5
Red spruce	592.4	502.5	324.9	148.9	87.7	25.9	29.6	6.3	1,718.2
Red pine	9.7	9.6	.0	.0	4.0	.0	.0	.0	23.3
White pine	52.7	64.8	64.9	37.7	54.3	48.1	68.7	11.6	402.8
Northern white-cedar	121.8	129.9	130.5	72.3	34.7	12.8	16.5	.0	518.5
Hemlock	50.5	41.6	43.4	62.6	34.2	4.1	42.5	4.0	282.9
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	1,650.4	1,118.6	740.3	402.0	214.9	90.9	157.3	21.9	4,396.3
Sugar maple	.0	202.0	174.8	137.0	95.0	84.3	123.7	13.2	830.0
Red maple	.0	110.1	107.1	55.6	52.7	45.2	5.9	.0	376.6
Yellow birch	.0	112.0	116.4	97.8	69.4	32.0	100.7	3.7	532.0
Paper birch	.0	125.4	51.5	20.6	7.9	.0	4.7	.0	210.1
Gray birch	.0	2.2	2.9	.0	.0	.0	.0	.0	5.1
Beech	.0	76.4	37.8	28.1	19.2	.0	8.6	.0	170.1
White ash	.0	27.2	3.7	.0	4.8	.0	.0	.0	35.7
Black ash	.0	10.1	3.3	.0	.0	.0	.0	.0	13.4
Aspen	.0	80.5	57.6	26.9	24.5	27.3	.0	.0	216.8
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	.0	.0	3.0	.0	.0	.0	11.7	.0	14.7
Basswood	.0	2.4	.0	.0	2.5	.0	.0	.0	4.9
Elm	.0	.0	8.3	.0	.0	.0	.0	.0	8.3
Other hardwoods	.0	2.2	.0	.0	.0	.0	.0	.0	2.2
Total hardwoods	.0	750.5	566.4	366.0	276.0	188.8	255.3	16.9	2,419.9
Total, all species	1,650.4	1,869.1	1,306.7	768.0	490.9	279.7	412.6	38.8	6,816.2

[a]International 1/4-inch rule.

Table 120.--Net volume of sawtimber trees on timberland by species and diameter class, Washington County, Maine, 1971

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	86.0	39.0	7.7	.0	.0	.0	.0	.0	132.7
Tamarack	22.1	7.4	16.9	.0	.0	.0	.0	.0	46.4
White spruce	13.3	11.3	9.8	3.5	.0	.0	.0	.0	37.9
Black spruce	6.1	3.3	.0	5.1	.0	.0	.0	.0	14.5
Red spruce	363.4	275.8	161.9	47.2	25.1	10.2	3.0	.0	886.6
Red pine	4.2	7.0	8.0	17.0	.0	5.6	.0	.0	41.8
White pine	18.8	39.1	35.6	32.5	41.6	43.1	37.6	7.5	255.8
Northern white-cedar	57.3	42.3	8.3	1.7	5.0	2.3	.0	.0	116.9
Hemlock	78.1	72.9	26.8	32.5	20.7	2.3	2.5	.0	235.8
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	649.3	498.1	275.0	139.5	92.4	63.5	43.1	7.5	1,768.4
Sugar maple	.0	9.1	9.6	13.7	3.4	6.7	6.2	.0	48.7
Red maple	.0	117.3	87.5	54.8	26.7	.0	.0	.0	286.3
Yellow birch	.0	12.0	9.2	4.8	3.9	5.6	.0	.0	35.5
Paper birch	.0	45.2	25.7	5.0	2.8	.0	.0	.0	78.7
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	.0	3.3	4.9	3.0	.0	.0	.0	.0	11.2
White ash	.0	7.0	6.7	14.3	.0	.0	10.0	.0	38.0
Black ash	.0	6.0	4.9	13.8	.0	.0	.0	.0	24.7
Aspen	.0	41.1	14.5	4.0	.0	.0	.0	.0	59.6
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	.0	6.2	.0	2.9	.0	6.9	.0	.0	16.0
Basswood	.0	.0	.0	.0	.0	.0	.0	.0	.0
Elm	.0	.0	.0	.0	.0	.0	.0	.0	.0
Other hardwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total hardwoods	.0	247.2	163.0	116.3	36.8	19.2	16.2	.0	598.7
Total, all species	649.3	745.3	438.0	255.8	129.2	82.7	59.3	7.5	2,367.1

[a]International 1/4-inch rule.

Table 121.--Net volume of sawtimber trees on timberland by species and diameter class, Washington County, Maine, 1982

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	93.0	26.5	3.4	4.2	.0	.0	.0	.0	127.1
Tamarack	5.5	13.0	.0	4.5	2.4	.0	2.5	.0	27.9
White spruce	38.0	10.9	4.8	.0	.0	.0	.0	.0	53.7
Black spruce	12.0	9.2	.0	.0	.0	.0	.0	.0	21.2
Red spruce	309.1	295.3	180.1	90.1	70.2	11.8	15.7	.0	972.3
Red pine	1.2	1.9	11.9	.0	.0	.0	.0	.0	15.0
White pine	19.8	40.1	35.0	39.9	18.3	28.5	41.0	9.3	231.9
Northern white-cedar	72.0	54.2	38.0	6.7	.0	4.8	.0	.0	175.7
Hemlock	106.5	103.8	59.0	31.8	15.6	11.0	3.6	.0	331.3
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	657.1	554.9	332.2	177.2	106.5	56.1	62.8	9.3	1,956.1
Sugar maple	.0	13.7	4.4	3.9	10.4	.0	30.2	4.3	66.9
Red maple	.0	81.5	70.4	14.3	3.7	12.5	4.0	.0	186.4
Yellow birch	.0	13.7	9.4	5.9	4.8	.0	3.6	.0	37.4
Paper birch	.0	48.1	24.9	8.5	.0	.0	.0	.0	81.5
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	.0	13.0	14.6	14.2	.0	.0	.0	.0	41.8
White ash	.0	1.3	.0	4.8	.0	.0	.0	.0	6.1
Black ash	.0	4.8	1.4	3.6	.0	.0	.0	.0	9.8
Aspen	.0	78.4	65.5	38.2	9.8	21.3	.0	.0	213.2
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	.0	8.4	.0	.0	.0	.0	.0	.0	8.4
Basswood	.0	.0	.0	.0	.0	.0	.0	.0	.0
Elm	.0	.0	.0	.0	.0	.0	.0	.0	.0
Other hardwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total hardwoods	.0	262.9	190.6	93.4	28.7	33.8	37.8	4.3	651.5
Total, all species	657.1	817.8	522.8	270.6	135.2	89.9	100.6	13.6	2,607.6

[a]International 1/4-inch rule.

Table 122.--Net volume of sawtimber trees on timberland by species and diameter class, Western Maine, 1971

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	388.7	138.8	52.9	25.2	7.4	.0	.0	.0	613.0
Tamarack	.0	.0	13.3	5.5	.0	3.1	.0	.0	21.9
White spruce	52.2	59.7	5.2	12.4	.0	8.0	5.2	.0	142.7
Black spruce	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red spruce	237.9	127.7	106.6	41.5	59.3	5.4	14.8	.0	593.2
Red pine	2.6	7.5	8.4	5.0	.0	.0	.0	.0	23.5
White pine	86.3	158.7	127.7	135.6	47.5	60.8	101.0	21.7	739.3
Northern white-cedar	21.3	12.6	.0	3.4	3.7	3.1	.0	.0	44.1
Hemlock	61.5	81.1	68.0	46.1	10.4	.0	3.1	.0	270.2
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	850.5	586.1	382.1	274.7	128.3	80.4	124.1	21.7	2,447.9
Sugar maple	.0	104.4	106.9	77.0	99.0	41.0	54.4	.0	482.7
Red maple	.0	120.7	67.4	47.7	22.7	16.5	30.5	.0	305.5
Yellow birch	.0	167.4	133.0	71.0	75.7	28.6	54.5	9.7	539.9
Paper birch	.0	71.8	68.9	24.7	25.3	7.8	4.7	.0	203.2
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	.0	69.8	29.8	31.8	.0	.0	.0	.0	131.4
White ash	.0	9.7	18.9	8.7	6.8	5.2	.0	.0	49.3
Black ash	.0	.0	12.6	.0	.0	.0	.0	.0	12.6
Aspen	.0	84.9	33.6	21.7	28.4	.0	.0	.0	168.6
White oaks	.0	.0	.0	.0	3.4	.0	.0	.0	3.4
Red oaks	.0	30.2	43.6	11.0	23.0	25.0	29.3	.0	162.1
Basswood	.0	7.9	.0	5.5	.0	8.4	6.5	.0	28.3
Elm	.0	.0	4.1	.0	.0	.0	.0	.0	4.1
Other hardwoods	.0	6.3	3.5	.0	.0	.0	.0	.0	9.8
Total hardwoods	.0	673.1	522.3	299.1	284.3	132.5	179.9	9.7	2,100.9
Total, all species	850.5	1,259.2	904.4	573.8	412.6	212.9	304.0	31.4	4,548.8

[a]International 1/4-inch rule.

Table 123.--Net volume of sawtimber trees on timberland by species and diameter class, Western Maine, 1982

(In millions of board feet)[a]

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Balsam fir	475.1	358.0	163.5	26.9	5.0	.0	.0	.0	1,028.5
Tamarack	4.3	.0	.0	.0	.0	.0	.0	.0	4.3
White spruce	38.1	20.2	16.5	9.4	.0	.0	.0	.0	84.2
Black spruce	35.5	3.4	16.6	.0	.0	.0	.0	.0	55.5
Red spruce	305.0	256.7	143.2	88.8	64.3	17.8	15.6	7.0	898.4
Red pine	3.4	6.2	11.9	18.9	5.2	5.5	.0	.0	51.1
White pine	147.6	154.4	205.8	135.9	137.0	52.9	48.9	32.9	915.4
Northern white-cedar	6.3	9.3	10.5	6.8	11.9	3.2	5.7	.0	53.7
Hemlock	71.5	100.8	88.2	71.2	6.3	9.9	.0	.0	347.9
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	1,086.8	909.0	656.2	357.9	229.7	89.3	70.2	39.9	3,439.0
Sugar maple	.0	111.8	65.1	37.8	19.2	25.5	30.8	.0	290.2
Red maple	.0	184.6	90.2	42.9	42.8	19.8	33.8	.0	414.1
Yellow birch	.0	188.7	145.0	119.9	55.5	58.5	126.2	6.8	700.6
Paper birch	.0	165.7	68.0	51.7	32.9	7.8	.0	.0	326.1
Gray birch	.0	3.7	4.2	3.0	.0	.0	.0	.0	10.9
Beech	.0	58.4	44.3	27.0	11.8	.0	.0	.0	141.5
White ash	.0	41.9	34.5	13.3	15.8	12.3	19.5	.0	137.3
Black ash	.0	2.6	.0	.0	.0	.0	.0	.0	2.6
Aspen	.0	115.8	40.2	20.7	5.1	.0	.0	.0	181.8
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	.0	31.0	32.3	21.4	3.3	6.3	3.9	6.8	105.0
Basswood	.0	2.7	.0	.0	.0	7.4	.0	.0	10.1
Elm	.0	.0	2.5	3.6	.0	.0	.0	.0	6.1
Other hardwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total hardwoods	.0	906.9	526.3	341.3	186.4	137.6	214.2	13.6	2,326.3
Total, all species	1,086.8	1,815.9	1,182.5	699.2	416.1	226.9	284.4	53.5	5,765.3

[a]International 1/4-inch rule.

Table 124.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Aroostook County, Maine, 1971

(In millions of board feet)[a]

Species	All size classes					>15" Diameter at breast height				
	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades
Balsam fir[c]	.0	.0	.0	.0	2,328.3	.0	.0	.0	.0	.0
Tamarack[c]	.0	.0	.0	.0	75.8	.0	.0	.0	.0	.0
White spruce[c]	.0	.0	.0	.0	562.0	.0	.0	.0	.0	.0
Black spruce[c]	.0	.0	.0	.0	26.7	.0	.0	.0	.0	.0
Red spruce[c]	.0	.0	.0	.0	3,048.3	.0	.0	.0	.0	.0
Red pine	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
White pine	37.7	48.2	98.6	46.4	230.9	35.6	27.4	70.8	36.4	170.2
Northern white-cedar[c]	.0	.0	.0	.0	607.2	.0	.0	.0	.0	.0
Hemlock[c]	.0	.0	.0	.0	258.9	.0	.0	.0	.0	.0
Other softwoods[c]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	37.7	48.2	98.6	46.4	7,138.1	35.6	27.4	70.8	36.4	170.2
Sugar maple	126.1	259.9	504.2	128.5	1,018.7	115.0	198.6	276.9	78.0	668.5
Red maple	39.2	122.4	239.4	52.0	453.0	31.2	64.6	72.3	12.7	180.8
Yellow birch	30.9	94.0	211.5	29.4	365.8	24.7	57.9	67.0	10.8	160.4
Paper birch	9.9	26.4	76.3	14.9	127.5	7.2	13.3	10.7	1.9	33.1
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	6.9	51.4	352.9	73.3	484.5	1.8	16.3	86.8	21.8	126.7
White ash	12.7	16.6	17.1	10.6	57.0	10.2	1.8	8.6	7.2	27.8
Black ash	11.2	21.8	32.8	13.8	79.6	9.4	1.6	3.3	.6	14.9
Aspen	13.6	73.8	298.1	77.9	463.4	13.6	20.9	62.6	11.1	108.2
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Basswood	1.6	.7	.7	.2	3.2	1.6	.7	.7	.2	3.2
Elm	7.3	2.5	1.5	.4	11.7	.0	.0	.0	.0	.0
Other hardwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total hardwoods	259.4	669.5	1,734.5	401.0	3,064.4	214.7	375.7	588.9	144.3	1,323.6
Percent of hardwood in each grade	8	22	57	13	100	16	28	45	11	100

[a]International 1/4-inch rule.
[b]Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c]These species are not divided into standard-lumber grades.

Table 125.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Aroostook County, Maine, 1982

(In millions of board feet)[a]

Species	All size classes					>15" Diameter at breast height				
	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades
Balsam fir[c]	.0	.0	.0	.0	2,174.0	.0	.0	.0	.0	.0
Tamarack[c]	.0	.0	.0	.0	127.5	.0	.0	.0	.0	.0
White spruce[c]	.0	.0	.0	.0	567.6	.0	.0	.0	.0	.0
Black spruce[c]	.0	.0	.0	.0	208.0	.0	.0	.0	.0	.0
Red spruce[c]	.0	.0	.0	.0	2,880.0	.0	.0	.0	.0	.0
Red pine	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
White pine	44.5	59.4	85.1	39.8	228.8	43.1	37.5	63.1	28.7	172.4
Northern white-cedar[c]	.0	.0	.0	.0	1,521.1	.0	.0	.0	.0	.0
Hemlock[c]	.0	.0	.0	.0	274.7	.0	.0	.0	.0	.0
Other softwoods[c]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	44.5	59.4	85.1	39.8	7,981.7	43.1	37.5	63.1	28.7	172.4
Sugar maple	187.4	251.5	528.0	246.9	1,213.8	171.2	189.9	311.3	161.8	834.2
Red maple	9.4	57.4	158.3	60.7	285.8	7.6	35.3	44.7	20.5	108.1
Yellow birch	37.1	83.6	227.7	49.5	397.9	32.5	47.5	78.5	17.2	175.7
Paper birch	.0	22.0	45.3	12.0	79.3	.0	8.4	9.4	1.7	19.5
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	5.2	44.4	304.4	124.5	478.5	2.0	21.1	118.3	46.4	187.8
White ash	2.2	5.1	12.5	7.7	27.5	2.3	5.1	5.6	5.9	18.9
Black ash	1.8	23.2	33.5	12.1	70.6	1.8	9.7	12.3	3.0	26.8
Aspen	28.3	148.8	330.9	97.9	605.9	23.6	52.4	65.7	21.4	163.1
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	.4	.2	1.8	.7	3.1	.0	.0	.0	.0	.0
Basswood	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Elm	.0	.0	3.5	5.6	9.1	.0	.0	.1	2.6	2.7
Other hardwoods	.0	.0	2.5	.6	3.1	.0	.0	.0	.0	.0
Total hardwoods	271.8	636.2	1,648.4	618.2	3,174.6	241.0	369.4	645.9	280.5	1,536.8
Percent of hardwood in each grade	9	20	52	19	100	16	24	42	18	100

[a]International 1/4-inch rule.
[b]Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c]These species are not divided into standard-lumber grades.

Table 126.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Capital Region, Maine, 1971

(In millions of board feet)[a]

Species	All size classes					>15" Diameter at breast height				
	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades
Balsam fir[c]	.0	.0	.0	.0	73.8	.0	.0	.0	.0	.0
Tamarack[c]	.0	.0	.0	.0	19.5	.0	.0	.0	.0	.0
White spruce[c]	.0	.0	.0	.0	56.8	.0	.0	.0	.0	.0
Black spruce[c]	.0	.0	.0	.0	11.6	.0	.0	.0	.0	.0
Red spruce[c]	.0	.0	.0	.0	143.9	.0	.0	.0	.0	.0
Red pine	.0	.0	11.0	.0	11.0	.0	.0	5.7	.0	5.7
White pine	3.4	44.7	237.5	281.7	567.3	3.4	29.9	98.6	167.7	299.6
Northern white-cedar[c]	.0	.0	.0	.0	39.2	.0	.0	.0	.0	.0
Hemlock[c]	.0	.0	.0	.0	264.8	.0	.0	.0	.0	.0
Other softwoods[c]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	3.4	44.7	248.5	281.7	1,187.9	3.4	29.9	104.3	167.7	305.3
Sugar maple	9.7	13.6	26.7	8.5	58.5	8.4	9.7	8.6	2.3	29.0
Red maple	5.4	32.9	102.5	19.1	159.9	5.4	10.4	24.2	3.9	43.9
Yellow birch	7.1	18.3	28.4	13.3	67.1	6.8	9.9	14.6	1.4	32.7
Paper birch	.0	16.6	41.3	6.0	63.9	.0	.1	6.7	1.1	7.9
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	.2	.0	13.3	1.8	15.3	.0	.0	.0	.0	.0
White ash	.0	13.6	11.8	4.1	29.5	.0	.0	.0	.0	.0
Black ash	.0	2.7	5.2	1.5	9.4	.0	.0	4.4	1.1	5.5
Aspen	.0	3.7	17.6	13.8	35.1	.0	.0	.0	.0	.0
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	.0	33.8	58.4	9.7	101.9	.0	9.8	12.2	2.4	24.4
Basswood	4.3	10.0	14.4	1.5	30.2	.0	.0	2.2	.0	2.2
Elm	12.7	44.9	59.9	11.2	128.7	12.7	35.7	37.5	6.8	92.7
Other hardwoods	.0	.0	2.0	.4	2.4	.0	.0	.0	.0	.0
Total hardwoods	39.4	190.1	381.5	90.9	701.9	33.3	75.6	110.4	19.0	238.3
Percent of hardwood in each grade	6	27	54	13	100	14	32	46	8	100

[a]International 1/4-inch rule.
[b]Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c]These species are not divided into standard-lumber grades.

Table 127.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Capital Region, Maine, 1982

(In millions of board feet)[a]

Species	All size classes					>15" Diameter at breast height				
	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades
Balsam fir[c]	.0	.0	.0	.0	64.5	.0	.0	.0	.0	.0
Tamarack[c]	.0	.0	.0	.0	49.9	.0	.0	.0	.0	.0
White spruce[c]	.0	.0	.0	.0	41.2	.0	.0	.0	.0	.0
Black spruce[c]	.0	.0	.0	.0	.8	.0	.0	.0	.0	.0
Red spruce[c]	.0	.0	.0	.0	462.1	.0	.0	.0	.0	.0
Red pine	1.0	1.2	2.7	.0	4.9	1.0	.1	.7	.0	1.8
White pine	48.1	207.5	446.4	298.1	1,000.1	40.4	105.0	228.8	180.7	554.9
Northern white-cedar[c]	.0	.0	.0	.0	39.1	.0	.0	.0	.0	.0
Hemlock[c]	.0	.0	.0	.0	415.1	.0	.0	.0	.0	.0
Other softwoods[c]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	49.1	208.7	449.1	298.1	2,077.7	41.4	105.1	229.5	180.7	556.7
Sugar maple	3.1	5.7	16.0	5.6	30.4	2.4	4.0	5.9	1.3	13.6
Red maple	2.3	23.4	188.2	87.9	301.8	2.3	9.5	67.0	41.1	119.9
Yellow birch	1.7	3.7	13.5	6.9	25.8	1.5	1.3	4.5	1.4	8.7
Paper birch	.8	15.2	39.8	9.3	65.1	.0	2.2	4.9	.8	7.9
Gray birch	.0	.9	1.5	.9	3.3	.0	.9	1.5	.3	2.7
Beech	.1	.0	15.2	14.0	29.3	.1	.0	4.7	2.2	7.0
White ash	8.9	17.6	19.0	5.9	51.4	8.0	11.3	5.7	2.1	27.1
Black ash	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Aspen	4.8	24.2	60.3	17.2	106.5	2.6	3.8	3.1	.4	9.9
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	30.3	67.8	108.4	36.3	242.8	24.6	30.3	41.2	18.0	114.1
Basswood	.8	5.0	5.2	.6	11.6	.0	3.8	2.0	.3	6.1
Elm	.0	.0	1.1	1.0	2.1	.0	.0	.0	.0	.0
Other hardwoods	1.4	3.7	8.0	2.2	15.3	1.5	2.9	2.4	.8	7.6
Total hardwoods	54.2	167.2	476.2	187.8	885.4	43.0	70.0	142.9	68.7	324.6
Percent of hardwood in each grade	6	19	54	21	100	13	22	44	21	100

[a]International 1/4-inch rule.
[b]Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c]These species are not divided into standard-lumber grades.

Table 128.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Casco Bay, Maine, 1971

(In millions of board feet)[a]

Species	All size classes					>15" Diameter at breast height				
	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades
Balsam fir[c]	.0	.0	.0	.0	22.8	.0	.0	.0	.0	.0
Tamarack[c]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
White spruce[c]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Black spruce[c]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red spruce[c]	.0	.0	.0	.0	101.1	.0	.0	.0	.0	.0
Red pine	.0	.0	5.2	.0	5.2	.0	.0	.0	.0	.0
White pine	22.2	69.1	1,068.4	841.4	2,001.1	13.0	32.7	385.1	407.9	838.7
Northern white-cedar[c]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Hemlock[c]	.0	.0	.0	.0	537.0	.0	.0	.0	.0	.0
Other softwoods[c]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	22.2	69.1	1,073.6	841.4	2,667.2	13.0	32.7	385.1	407.9	838.7
Sugar maple	14.1	5.7	7.4	2.8	30.0	14.1	5.7	7.4	2.8	30.0
Red maple	3.1	6.1	79.9	19.3	108.4	3.1	3.3	22.7	4.4	33.5
Yellow birch	3.7	1.0	15.9	5.6	26.2	.0	.0	.0	4.3	4.3
Paper birch	.0	.2	33.0	11.0	44.2	.0	.2	7.9	1.5	9.6
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	.2	.0	18.0	15.3	33.5	.1	.0	15.4	2.4	17.9
White ash	4.0	10.2	4.8	1.5	20.5	4.0	4.9	3.2	.7	12.8
Black ash	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Aspen	.0	.0	4.2	.8	5.0	.0	.0	.0	.0	.0
White oaks	.0	.0	11.7	2.9	14.6	.0	.0	7.0	1.7	8.7
Red oaks	41.7	61.3	182.3	34.2	319.5	37.7	33.3	50.4	14.5	135.9
Basswood	.0	.0	4.6	.4	5.0	.0	.0	.0	.0	.0
Elm	.0	6.6	2.6	.6	9.8	.0	6.6	2.7	.6	9.9
Other hardwoods	.0	.1	2.5	.2	2.8	.0	.0	.0	.0	.0
Total hardwoods	66.8	91.2	366.9	94.6	619.5	59.0	54.0	116.7	32.9	262.6
Percent of hardwood in each grade	11	15	59	15	100	22	21	44	13	100

[a]International 1/4-inch rule.
[b]Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c]These species are not divided into standard-lumber grades.

Table 129.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Casco Bay, Maine, 1982

(In millions of board feet)[a]

Species	All size classes					>15" Diameter at breast height				
	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades
Balsam fir[c]	.0	.0	.0	.0	58.0	.0	.0	.0	.0	.0
Tamarack[c]	.0	.0	.0	.0	9.3	.0	.0	.0	.0	.0
White spruce[c]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Black spruce[c]	.0	.0	.0	.0	.8	.0	.0	.0	.0	.0
Red spruce[c]	.0	.0	.0	.0	81.6	.0	.0	.0	.0	.0
Red pine	13.6	5.8	22.6	.0	42.0	1.2	.2	2.5	.0	3.9
White pine	218.7	484.6	1,037.7	505.7	2,246.7	186.2	224.5	496.9	266.6	1,174.2
Northern white-cedar[c]	.0	.0	.0	.0	6.3	.0	.0	.0	.0	.0
Hemlock[c]	.0	.0	.0	.0	868.1	.0	.0	.0	.0	.0
Other softwoods[c]	.0	.0	.0	.0	32.5	.0	.0	.0	.0	.0
Total softwoods	232.3	490.4	1,060.3	505.7	3,345.3	187.4	224.7	499.4	266.6	1,178.1
Sugar maple	4.8	4.6	12.7	9.1	31.2	2.2	1.9	3.5	3.8	11.4
Red maple	3.0	23.3	112.7	57.2	196.2	3.0	3.6	22.0	13.8	42.4
Yellow birch	.1	1.8	6.7	1.0	9.6	.0	.0	1.2	.1	1.3
Paper birch	1.4	15.0	23.8	10.6	50.8	1.4	1.7	2.4	3.9	9.4
Gray birch	.0	2.2	1.7	.4	4.3	.0	.0	.0	.0	.0
Beech	.6	5.5	23.8	15.5	45.4	.2	2.8	5.5	4.1	12.6
White ash	5.8	5.3	9.7	2.7	23.5	5.8	2.3	5.1	1.2	14.4
Black ash	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Aspen	1.8	12.1	23.0	12.5	49.4	1.8	.6	2.4	2.4	7.2
White oaks	5.1	4.6	7.0	6.5	23.2	5.1	2.8	2.0	4.2	14.1
Red oaks	69.5	114.2	144.2	46.3	374.2	56.0	33.1	41.1	18.1	148.3
Basswood	.0	.6	.3	.0	.9	.0	.0	.0	.0	.0
Elm	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Other hardwoods	2.1	1.0	6.8	2.8	12.7	2.0	.4	.5	2.1	5.0
Total hardwoods	94.2	190.2	372.4	164.6	821.4	77.5	49.2	85.7	53.7	266.1
Percent of hardwood in each grade	12	23	45	20	100	29	19	32	20	100

[a]International 1/4-inch rule.
[b]Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c]These species are not divided into standard-lumber grades.

Table 130.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Hancock County, Maine, 1971

(In millions of board feet)[a]

Species	All size classes					>15" Diameter at breast height				
	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades
Balsam fir[c]	.0	.0	.0	.0	32.4	.0	.0	.0	.0	.0
Tamarack[c]	.0	.0	.0	.0	15.4	.0	.0	.0	.0	.0
White spruce[c]	.0	.0	.0	.0	53.5	.0	.0	.0	.0	.0
Black spruce[c]	.0	.0	.0	.0	6.1	.0	.0	.0	.0	.0
Red spruce[c]	.0	.0	.0	.0	564.7	.0	.0	.0	.0	.0
Red pine	.0	.0	4.3	.0	4.3	.0	.0	.0	.0	.0
White pine	13.4	19.1	50.2	28.2	110.9	10.5	9.5	33.9	20.5	74.4
Northern white-cedar[c]	.0	.0	.0	.0	97.5	.0	.0	.0	.0	.0
Hemlock[c]	.0	.0	.0	.0	161.9	.0	.0	.0	.0	.0
Other softwoods[c]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	13.4	19.1	54.5	28.2	1,046.7	10.5	9.5	33.9	20.5	74.4
Sugar maple	3.7	.9	13.8	2.8	21.2	3.7	.6	6.4	1.6	12.3
Red maple	7.3	12.4	62.5	13.6	95.8	5.3	9.7	22.0	4.0	41.0
Yellow birch	3.1	13.6	11.9	4.8	33.4	2.9	7.1	2.8	.4	13.2
Paper birch	.0	2.8	13.7	4.2	20.7	.0	.0	.0	.0	.0
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	5.7	1.6	14.1	2.1	23.5	5.6	1.6	6.6	1.1	14.9
White ash	1.4	4.2	14.4	3.9	23.9	.0	1.9	6.9	1.9	10.7
Black ash	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Aspen	.0	.0	8.0	1.5	9.5	.0	.0	.0	.0	.0
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	4.1	.9	4.0	.4	9.4	.0	.0	.0	.0	.0
Basswood	1.9	.8	.8	.2	3.7	1.9	.9	.8	.2	3.8
Elm	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Other hardwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total hardwoods	27.2	37.2	143.2	33.5	241.1	19.4	21.8	45.5	9.2	95.9
Percent of hardwood in each grade	11	16	59	14	100	20	23	47	10	100

[a]International 1/4-inch rule.
[b]Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c]These species are not divided into standard-lumber grades.

Table 131.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Hancock County, Maine, 1982

(In millions of board feet)[a]

Species	All size classes					>15" Diameter at breast height				
	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades
Balsam fir[c]	.0	.0	.0	.0	54.0	.0	.0	.0	.0	.0
Tamarack[c]	.0	.0	.0	.0	20.3	.0	.0	.0	.0	.0
White spruce[c]	.0	.0	.0	.0	16.3	.0	.0	.0	.0	.0
Black spruce[c]	.0	.0	.0	.0	17.6	.0	.0	.0	.0	.0
Red spruce[c]	.0	.0	.0	.0	780.2	.0	.0	.0	.0	.0
Red pine	12.7	2.0	12.5	.0	27.2	2.6	.3	2.0	.0	4.9
White pine	31.7	48.3	100.6	82.3	262.9	26.3	25.9	61.3	63.6	177.1
Northern white-cedar[c]	.0	.0	.0	.0	125.3	.0	.0	.0	.0	.0
Hemlock[c]	.0	.0	.0	.0	240.1	.0	.0	.0	.0	.0
Other softwoods[c]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	44.4	50.3	113.1	82.3	1,543.9	28.9	26.2	63.3	63.6	182.0
Sugar maple	3.3	4.7	12.5	4.5	25.0	3.2	3.0	9.7	1.8	17.7
Red maple	10.5	20.1	49.2	18.3	98.1	10.5	5.4	10.9	9.8	36.6
Yellow birch	.1	5.5	6.2	2.9	14.7	.1	3.5	3.7	.4	7.7
Paper birch	.0	8.0	17.9	2.5	28.4	.0	.0	3.7	.5	4.2
Gray birch	.0	.0	.1	2.5	2.6	.0	.0	.0	.0	.0
Beech	.0	.0	3.3	2.6	5.9	.0	.0	.0	.0	.0
White ash	.0	12.3	10.3	3.6	26.2	.0	3.4	1.0	.5	4.9
Black ash	.0	5.3	1.6	.9	7.8	.0	.0	.0	.0	.0
Aspen	2.4	10.7	23.5	20.6	57.2	.0	.0	.0	.0	.0
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	4.4	3.1	3.7	.7	11.9	4.4	1.0	3.0	.3	8.7
Basswood	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Elm	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Other hardwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total hardwoods	20.7	69.7	128.3	59.1	277.8	18.2	16.3	32.0	13.3	79.8
Percent of hardwood in each grade	8	25	46	21	100	23	20	40	17	100

[a]International 1/4-inch rule.
[b]Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c]These species are not divided into standard-lumber grades.

Table 132.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Penobscot County, Maine, 1971

(In millions of board feet)[a]

Species	All size classes					>15" Diameter at breast height				
	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades
Balsam fir[c]	.0	.0	.0	.0	380.0	.0	.0	.0	.0	.0
Tamarack[c]	.0	.0	.0	.0	13.1	.0	.0	.0	.0	.0
White spruce[c]	.0	.0	.0	.0	60.0	.0	.0	.0	.0	.0
Black spruce[c]	.0	.0	.0	.0	12.3	.0	.0	.0	.0	.0
Red spruce[c]	.0	.0	.0	.0	927.8	.0	.0	.0	.0	.0
Red pine	.0	.0	3.3	.0	3.3	.0	.0	.0	.0	.0
White pine	29.3	57.3	222.9	145.9	455.4	26.5	40.3	139.9	109.4	316.1
Northern white-cedar[c]	.0	.0	.0	.0	193.4	.0	.0	.0	.0	.0
Hemlock[c]	.0	.0	.0	.0	562.3	.0	.0	.0	.0	.0
Other softwoods[c]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	29.3	57.3	226.2	145.9	2,607.6	26.5	40.3	139.9	109.4	316.1
Sugar maple	71.0	77.3	121.1	29.6	299.0	66.5	71.5	70.0	17.9	225.9
Red maple	26.5	93.9	258.8	60.1	439.3	24.4	59.7	91.0	18.3	193.4
Yellow birch	18.7	28.4	81.3	10.2	138.6	14.7	14.0	18.9	2.0	49.6
Paper birch	7.1	32.5	36.3	5.7	81.6	3.5	19.4	9.7	1.7	34.3
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	1.2	3.4	88.0	22.4	115.0	.2	.0	23.5	3.6	27.3
White ash	13.2	5.7	13.4	3.3	35.6	13.2	5.7	5.6	1.4	25.9
Black ash	12.1	16.1	26.1	7.5	61.8	9.8	1.7	12.2	2.8	26.5
Aspen	.0	8.1	28.4	8.6	45.1	.0	2.7	1.1	.2	4.0
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	6.0	7.2	3.7	2.0	18.9	5.9	7.2	3.8	2.0	18.9
Basswood	5.9	2.8	12.5	1.1	22.3	4.6	2.1	2.0	.5	9.2
Elm	9.3	9.8	19.7	4.1	42.9	7.4	5.4	2.7	.7	16.2
Other hardwoods	.0	1.5	.7	.3	2.5	.0	1.5	.7	.3	2.5
Total hardwoods	171.0	286.7	690.0	154.9	1,302.6	150.2	190.9	241.2	51.4	633.7
Percent of hardwood in each grade	13	22	53	12	100	24	30	38	8	100

[a]International 1/4-inch rule.
[b]Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c]These species are not divided into standard-lumber grades.

Table 133.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Penobscot County, Maine, 1982

(In millions of board feet)[a]

Species	All size classes					>15" Diameter at breast height				
	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades
Balsam fir[c]	.0	.0	.0	.0	186.5	.0	.0	.0	.0	.0
Tamarack[c]	.0	.0	.0	.0	26.7	.0	.0	.0	.0	.0
White spruce[c]	.0	.0	.0	.0	69.9	.0	.0	.0	.0	.0
Black spruce[c]	.0	.0	.0	.0	19.8	.0	.0	.0	.0	.0
Red spruce[c]	.0	.0	.0	.0	1,124.1	.0	.0	.0	.0	.0
Red pine	31.6	7.5	33.4	.0	72.5	6.6	.9	9.1	.0	16.6
White pine	92.6	106.6	236.5	110.7	546.4	85.7	68.8	144.5	67.4	366.4
Northern white-cedar[c]	.0	.0	.0	.0	348.2	.0	.0	.0	.0	.0
Hemlock[c]	.0	.0	.0	.0	751.1	.0	.0	.0	.0	.0
Other softwoods[c]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	124.2	114.1	269.9	110.7	3,145.2	92.3	69.7	153.6	67.4	383.0
Sugar maple	47.8	60.0	137.1	39.2	284.1	39.2	35.0	60.6	15.1	149.9
Red maple	19.8	56.4	171.5	51.3	299.0	19.8	20.2	30.6	12.4	83.0
Yellow birch	10.2	14.6	48.2	21.8	94.8	9.8	6.8	21.8	5.6	44.0
Paper birch	6.7	17.2	54.0	8.7	86.6	2.2	1.0	11.7	2.2	17.1
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	.4	.0	57.1	64.4	121.9	.0	.0	5.8	8.8	14.6
White ash	7.1	14.4	27.7	16.5	65.7	2.5	8.0	3.1	4.0	17.6
Black ash	.0	4.8	18.4	10.7	33.9	.0	2.0	6.6	1.3	9.9
Aspen	31.0	93.7	157.3	54.6	336.6	13.3	15.2	12.1	6.0	46.6
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	.8	2.0	5.0	3.8	11.6	.8	2.1	2.4	3.5	8.8
Basswood	6.5	12.4	11.0	1.6	31.5	4.4	7.9	5.0	.9	18.2
Elm	26.4	23.6	21.9	5.0	76.9	26.4	21.1	15.5	3.8	66.8
Other hardwoods	.0	.0	2.9	1.3	4.2	.0	.0	.0	.0	.0
Total hardwoods	156.7	299.1	712.1	278.9	1,446.8	118.4	119.2	175.2	63.7	476.5
Percent of hardwood in each grade	11	21	49	19	100	25	25	37	13	100

[a]International 1/4-inch rule.
[b]Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c]These species are not divided into standard-lumber grades.

Table 134.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Piscataquis County, Maine, 1971

(In millions of board feet)[a]

Species	All size classes					>15" Diameter at breast height				
	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades
Balsam fir[c]	.0	.0	.0	.0	734.1	.0	.0	.0	.0	.0
Tamarack[c]	.0	.0	.0	.0	4.6	.0	.0	.0	.0	.0
White spruce[c]	.0	.0	.0	.0	197.6	.0	.0	.0	.0	.0
Black spruce[c]	.0	.0	.0	.0	34.8	.0	.0	.0	.0	.0
Red spruce[c]	.0	.0	.0	.0	1,824.2	.0	.0	.0	.0	.0
Red pine	.0	0	8.4	.0	8.4	.0	.0	5.6	.0	5.6
White pine	51.2	119.8	290.1	158.3	619.4	48.8	85.1	202.2	104.3	440.4
Northern white-cedar[c]	.0	.0	.0	.0	413.8	.0	.0	.0	.0	.0
Hemlock[c]	.0	.0	.0	.0	174.9	.0	.0	.0	.0	.0
Other softwoods[c]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	51.2	119.8	298.5	158.3	4,011.8	48.8	85.1	207.8	104.3	446.0
Sugar maple	186.0	241.1	354.2	87.3	868.6	165.4	147.9	197.2	49.7	560.2
Red maple	12.0	52.9	156.9	26.8	248.6	12.0	21.9	48.0	7.4	89.3
Yellow birch	93.7	122.5	177.7	19.6	413.5	68.6	49.2	76.8	7.0	201.6
Paper birch	17.7	40.2	70.6	15.5	144.0	11.4	15.9	15.2	2.8	45.3
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	14.6	9.8	149.4	50.4	224.2	9.1	2.5	62.0	11.8	85.4
White ash	7.3	14.7	26.6	7.6	56.2	7.3	11.7	11.6	3.6	34.2
Black ash	6.6	10.7	11.1	3.4	31.8	.0	3.6	1.1	.6	5.3
Aspen	2.8	8.0	22.6	4.4	37.8	.0	.0	7.1	1.3	8.4
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	8.8	9.8	8.0	1.7	28.3	5.6	9.0	7.1	1.6	23.3
Basswood	14.0	9.7	7.9	1.7	33.3	8.7	4.0	3.8	.9	17.4
Elm	3.3	21.0	30.0	6.0	60.3	1.4	14.6	18.3	3.7	38.0
Black cherry	.0	.0	2.4	.5	2.9	.0	.0	.0	.0	.0
Total hardwoods	366.8	540.4	1,017.4	224.9	2,149.5	289.5	280.3	448.2	90.4	1,108.4
Percent of hardwood in each grade	17	25	47	11	100	26	25	41	8	100

[a]International 1/4-inch rule.
[b]Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c]These species are not divided into standard-lumber grades.

Table 135.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Piscataquis County, Maine, 1982

(In millions of board feet)[a]

Species	All size classes					>15" Diameter at breast height				
	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades
Balsam fir[c]	.0	.0	.0	.0	904.6	.0	.0	.0	.0	.0
Tamarack[c]	.0	.0	.0	.0	19.9	.0	.0	.0	.0	.0
White spruce[c]	.0	.0	.0	.0	179.5	.0	.0	.0	.0	.0
Black spruce[c]	.0	.0	.0	.0	202.7	.0	.0	.0	.0	.0
Red spruce[c]	.0	.0	.0	.0	2,757.3	.0	.0	.0	.0	.0
Red pine	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
White pine	176.2	113.6	261.6	133.7	685.2	162.4	90.1	202.1	100.2	554.8
Northern white-cedar[c]	.0	.0	.0	.0	666.4	.0	.0	.0	.0	.0
Hemlock[c]	.0	.0	.0	.0	176.8	.0	.0	.0	.0	.0
Other softwoods[c]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	176.2	113.6	261.6	133.7	5,592.4	162.4	90.1	202.1	100.2	554.8
Sugar maple	134.4	166.6	284.1	102.9	688.0	120.1	107.1	135.9	50.6	413.7
Red maple	12.8	91.7	255.6	72.8	432.9	10.0	53.6	97.8	20.1	181.5
Yellow birch	32.3	113.7	193.9	33.1	373.0	27.3	68.1	93.6	9.6	198.6
Paper birch	14.9	36.6	60.4	10.0	121.9	9.4	9.6	13.8	2.7	35.5
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	5.4	29.4	113.4	32.4	180.6	3.3	7.5	24.2	8.1	43.1
White ash	.0	10.3	19.8	5.8	35.9	.0	5.5	4.9	1.7	12.1
Black ash	5.0	11.4	11.4	3.6	31.4	.0	3.3	5.8	1.7	10.8
Aspen	36.3	87.4	136.2	33.1	293.0	33.5	33.8	37.7	11.1	116.1
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	6.8	9.7	4.8	2.5	23.8	6.9	7.1	3.9	2.1	20.0
Basswood	.0	5.3	6.1	.7	12.1	.0	.0	.0	.0	.0
Elm	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Other hardwoods	.0	.0	2.9	.6	3.5	.0	.0	.0	.0	.0
Total hardwoods	247.9	562.1	1,088.6	297.5	2,196.1	210.5	295.6	417.6	107.7	1,031.4
Percent of hardwood in each grade	11	26	50	13	100	20	29	41	10	100

[a]International 1/4-inch rule.
[b]Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c]These species are not divided into standard-lumber grades.

Table 136.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Somerset County, Maine, 1971

(In millions of board feet)[a]

Species	All size classes					>15" Diameter at breast height				
	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades
Balsam fir[c]	.0	.0	.0	.0	898.2	.0	.0	.0	.0	.0
Tamarack[c]	.0	.0	.0	.0	6.6	.0	.0	.0	.0	.0
White spruce[c]	.0	.0	.0	.0	260.1	.0	.0	.0	.0	.0
Black spruce[c]	.0	.0	.0	.0	8.8	.0	.0	.0	.0	.0
Red spruce[c]	.0	.0	.0	.0	1,052.0	.0	.0	.0	.0	.0
Red pine	2.2	.3	1.7	.0	4.2	.0	.0	.0	.0	.0
White pine	4.5	30.6	88.4	53.1	176.6	4.5	19.9	44.8	35.8	105.0
Northern white-cedar[c]	.0	.0	.0	.0	248.2	.0	.0	.0	.0	.0
Hemlock[c]	.0	.0	.0	.0	168.5	.0	.0	.0	.0	.0
Other softwoods[c]	.0	.0	.0	.0	4.6	.0	.0	.0	.0	.0
Total softwoods	6.7	30.9	90.1	53.1	2,827.8	4.5	19.9	44.8	35.8	105.0
Sugar maple	103.4	216.5	439.6	100.2	859.7	98.6	139.1	204.7	49.8	492.2
Red maple	11.4	39.1	142.0	31.6	224.1	11.4	19.0	45.5	13.0	88.9
Yellow birch	27.2	148.2	223.0	54.5	452.9	24.7	104.7	98.6	27.1	255.1
Paper birch	.0	47.8	92.9	20.1	160.8	.0	12.8	21.8	6.0	40.6
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	2.4	24.7	87.0	51.2	165.3	1.2	15.3	28.2	26.2	70.9
White ash	.0	2.7	9.6	2.7	15.0	.0	.0	.0	.0	.0
Black ash	.0	3.1	7.3	2.1	12.5	.0	.0	.0	.0	.0
Aspen	2.6	16.6	63.3	12.3	94.8	2.6	10.2	7.0	1.5	21.3
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Basswood	7.4	13.4	22.3	2.6	45.7	5.4	7.1	8.0	1.2	21.7
Elm	3.2	4.6	9.5	2.0	19.3	3.3	4.6	2.1	.5	10.5
Other hardwoods	3.9	.8	5.1	1.5	11.3	3.9	.8	5.1	1.5	11.3
Total hardwoods	161.5	517.5	1,101.6	280.8	2,061.4	151.1	313.6	421.0	126.8	1,012.5
Percent of hardwood in each grade	8	25	53	14	100	15	31	42	12	100

[a]International 1/4-inch rule.
[b]Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c]These species are not divided into standard-lumber grades.

Table 137.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Somerset County, Maine, 1982

(In millions of board feet)[a]

Species	All size classes					>15" Diameter at breast height				
	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades
Balsam fir[c]	.0	.0	.0	.0	1,264.6	.0	.0	.0	.0	.0
Tamarack[c]	.0	.0	.0	.0	11.5	.0	.0	.0	.0	.0
White spruce[c]	.0	.0	.0	.0	122.0	.0	.0	.0	.0	.0
Black spruce[c]	.0	.0	.0	.0	52.5	.0	.0	.0	.0	.0
Red spruce[c]	.0	.0	.0	.0	1,718.2	.0	.0	.0	.0	.0
Red pine	2.0	.3	21.0	.0	23.3	.0	.0	4.0	.0	4.0
White pine	25.1	63.3	186.4	128.0	402.8	21.0	20.4	101.9	77.0	220.3
Northern white-cedar[c]	.0	.0	.0	.0	518.5	.0	.0	.0	.0	.0
Hemlock[c]	.0	.0	.0	.0	282.9	.0	.0	.0	.0	.0
Other softwoods[c]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	27.1	63.6	207.4	128.0	4,396.3	21.0	20.4	105.9	77.0	224.3
Sugar maple	133.5	208.6	381.1	106.8	830.0	105.7	124.9	174.4	48.2	453.2
Red maple	29.5	79.1	201.7	66.3	376.6	24.9	39.7	67.0	27.8	159.4
Yellow birch	71.5	173.2	228.6	58.7	532.0	65.1	97.4	111.4	29.7	303.6
Paper birch	15.5	65.4	107.9	21.3	210.1	5.7	12.3	12.4	2.8	33.2
Gray birch	.0	.0	4.3	.8	5.1	.0	.0	.0	.0	.0
Beech	6.7	34.0	106.9	22.5	170.1	4.8	16.7	28.1	6.2	55.8
White ash	3.1	10.4	16.0	6.2	35.7	3.0	.5	1.1	.2	4.8
Black ash	.0	2.3	8.7	2.4	13.4	.0	.0	.0	.0	.0
Aspen	37.9	71.6	88.7	18.6	216.8	32.8	19.1	21.8	5.1	78.8
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	5.5	5.5	2.9	.8	14.7	5.5	3.5	2.2	.5	11.7
Basswood	.0	1.5	.8	2.6	4.9	.0	.0	.0	2.5	2.5
Elm	.0	5.6	2.2	.5	8.3	.0	.0	.0	.0	.0
Other hardwoods	.0	1.5	.6	.1	2.2	.0	.0	.0	.0	.0
Total hardwoods	303.2	658.7	1,150.4	307.6	2,419.9	247.5	314.1	418.4	123.0	1,103.0
Percent of hardwood in each grade	12	27	48	13	100	22	29	38	11	100

[a]International 1/4-inch rule.
[b]Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c]These species are not divided into standard-lumber grades.

Table 138.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Washington County, Maine, 1971

(In millions of board feet)[a]

Species	All size classes					>15" Diameter at breast height				
	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades
Balsam fir[c]	.0	.0	.0	.0	132.7	.0	.0	.0	.0	.0
Tamarack[c]	.0	.0	.0	.0	46.4	.0	.0	.0	.0	.0
White spruce[c]	.0	.0	.0	.0	37.9	.0	.0	.0	.0	.0
Black spruce[c]	.0	.0	.0	.0	14.5	.0	.0	.0	.0	.0
Red spruce[c]	.0	.0	.0	.0	886.6	.0	.0	.0	.0	.0
Red pine	7.3	3.4	31.1	.0	41.8	4.7	3.0	14.9	.0	22.6
White pine	11.9	33.6	132.6	77.7	255.8	10.4	17.5	82.9	51.4	162.2
Northern white-cedar[c]	.0	.0	.0	.0	116.9	.0	.0	.0	.0	.0
Hemlock[c]	.0	.0	.0	.0	235.8	.0	.0	.0	.0	.0
Other softwoods[c]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	19.2	37.0	163.7	77.7	1,768.4	15.1	20.5	97.8	51.4	184.8
Sugar maple	10.7	12.5	20.9	4.6	48.7	10.6	7.6	9.4	2.4	30.0
Red maple	21.7	49.6	181.7	33.3	286.3	18.5	17.1	38.1	7.8	81.5
Yellow birch	4.5	4.5	24.7	1.8	35.5	4.2	.9	8.7	.5	14.3
Paper birch	2.0	6.4	61.7	8.6	78.7	2.0	.6	4.5	.7	7.8
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	.1	.0	9.8	1.3	11.2	.0	.0	2.6	.4	3.0
White ash	11.3	11.6	11.6	3.5	38.0	9.0	8.5	5.2	1.7	24.4
Black ash	5.9	7.5	8.7	2.6	24.7	5.8	4.2	3.0	.9	13.9
Aspen	.0	7.0	44.1	8.5	59.6	.0	.0	3.3	.6	3.9
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	1.9	2.7	10.1	1.3	16.0	1.9	.4	6.7	.7	9.7
Basswood	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Elm	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Other hardwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total hardwoods	58.1	101.8	373.3	65.5	598.7	52.0	39.3	81.5	15.7	188.5
Percent of hardwood in each grade	10	17	62	11	100	28	21	43	8	100

[a]International 1/4-inch rule.
[b]Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c]These species are not divided into standard-lumber grades.

Table 139.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Washington County, Maine, 1982

(In millions of board feet)[a]

Species	All size classes					>15" Diameter at breast height				
	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades
Balsam fir[c]	.0	.0	.0	.0	127.1	.0	.0	.0	.0	.0
Tamarack[c]	.0	.0	.0	.0	27.9	.0	.0	.0	.0	.0
White spruce[c]	.0	.0	.0	.0	53.7	.0	.0	.0	.0	.0
Black spruce[c]	.0	.0	.0	.0	21.2	.0	.0	.0	.0	.0
Red spruce[c]	.0	.0	.0	.0	972.3	.0	.0	.0	.0	.0
Red pine	6.5	2.2	6.3	.0	15.0	.0	.0	.0	.0	.0
White pine	49.5	51.7	94.6	36.1	231.9	40.2	25.0	56.9	14.8	136.9
Northern white-cedar[c]	.0	.0	.0	.0	175.7	.0	.0	.0	.0	.0
Hemlock[c]	.0	.0	.0	.0	331.3	.0	.0	.0	.0	.0
Other softwoods[c]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	56.0	53.9	100.9	36.1	1,956.1	40.2	25.0	56.9	14.8	136.9
Sugar maple	6.5	18.3	18.0	24.1	66.9	4.6	12.6	11.5	20.3	49.0
Red maple	2.0	50.6	98.4	35.4	186.4	2.0	8.5	15.7	8.3	34.5
Yellow birch	5.6	16.3	12.8	2.7	37.4	5.5	3.4	5.0	.3	14.2
Paper birch	8.3	34.4	29.8	9.0	81.5	5.9	1.9	.4	.3	8.5
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	5.9	11.0	17.1	7.8	41.8	3.7	3.3	6.4	.9	14.3
White ash	3.0	.5	2.1	.5	6.1	3.0	.5	1.0	.2	4.7
Black ash	.0	2.3	4.7	2.8	9.8	.0	.0	2.9	.7	3.6
Aspen	42.9	71.9	76.8	21.6	213.2	30.8	15.5	18.6	4.4	69.3
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	.0	2.4	5.3	.7	8.4	.0	.0	.0	.0	.0
Basswood	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Elm	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Other hardwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total hardwoods	74.2	207.7	265.0	104.6	651.5	55.5	45.7	61.5	35.4	198.1
Percent of hardwood in each grade	11	32	41	16	100	28	23	31	18	100

[a]International 1/4-inch rule.
[b]Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c]These species are not divided into standard-lumber grades.

Table 140.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Western Maine, 1971

(In millions of board feet)[a]

Species	All size classes					>15" Diameter at breast height				
	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades
Balsam fir[c]	.0	.0	.0	.0	613.0	.0	.0	.0	.0	.0
Tamarack[c]	.0	.0	.0	.0	21.9	.0	.0	.0	.0	.0
White spruce[c]	.0	.0	.0	.0	142.7	.0	.0	.0	.0	.0
Black spruce[c]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red spruce[c]	.0	.0	.0	.0	593.2	.0	.0	.0	.0	.0
Red pine	.0	6.3	17.2	.0	23.5	.0	2.5	2.6	.0	5.1
White pine	23.9	71.5	423.5	220.4	739.3	17.4	42.0	195.3	112.0	366.7
Northern white-cedar[c]	.0	.0	.0	.0	44.1	.0	.0	.0	.0	.0
Hemlock[c]	.0	.0	.0	.0	270.2	.0	.0	.0	.0	.0
Other softwoods[c]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	23.9	77.8	440.7	220.4	2,447.9	17.4	44.5	197.9	112.0	371.8
Sugar maple	111.2	112.0	214.9	44.6	482.7	99.9	60.4	90.0	21.1	271.4
Red maple	17.5	52.9	200.5	34.6	305.5	8.1	33.8	63.5	12.1	117.5
Yellow birch	97.7	112.2	305.0	25.0	539.9	70.3	60.8	100.1	8.4	239.6
Paper birch	26.6	37.6	119.3	19.7	203.2	19.9	14.7	23.2	4.6	62.4
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	.8	.0	90.8	39.8	131.4	.1	.0	24.1	7.7	31.9
White ash	16.3	10.5	17.8	4.7	49.3	9.7	1.7	7.6	1.7	20.7
Black ash	7.9	1.4	2.8	.5	12.6	.0	.0	.0	.0	.0
Aspen	25.9	32.2	88.6	21.9	168.6	9.4	14.0	18.6	8.0	50.0
White oaks	.0	2.2	.8	.4	3.4	.0	2.2	.7	.4	3.3
Red oaks	60.9	36.2	54.5	10.5	162.1	46.5	20.7	15.9	5.2	88.3
Basswood	10.2	7.3	9.3	1.5	28.3	10.2	4.7	4.5	1.0	20.4
Elm	.0	.0	3.4	.7	4.1	.0	.0	.0	.0	.0
Other hardwoods	.0	.0	8.2	1.6	9.8	.0	.0	.0	.0	.0
Total hardwoods	375.0	404.5	1,115.9	205.5	2,100.9	274.1	213.0	348.2	70.2	905.5
Percent of hardwood in each grade	18	19	53	10	100	30	24	38	8	100

[a]International 1/4-inch rule.
[b]Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c]These species are not divided into standard-lumber grades.

Table 141.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Western Maine, 1982

(In millions of board feet)[a]

Species	All size classes					>15" Diameter at breast height				
	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades	Grade 1	Grade 2	Grade 3	Grade 4[b]	All grades
Balsam fir[c]	.0	.0	.0	.0	1,028.5	.0	.0	.0	.0	.0
Tamarack[c]	.0	.0	.0	.0	4.3	.0	.0	.0	.0	.0
White spruce[c]	.0	.0	.0	.0	84.2	.0	.0	.0	.0	.0
Black spruce[c]	.0	.0	.0	.0	55.5	.0	.0	.0	.0	.0
Red spruce[c]	.0	.0	.0	.0	898.4	.0	.0	.0	.0	.0
Red pine	24.7	3.3	23.1	.0	51.1	15.7	2.1	11.8	.0	29.6
White pine	70.3	234.5	447.8	162.8	915.4	51.7	93.5	194.1	68.2	407.5
Northern white-cedar[c]	.0	.0	.0	.0	53.7	.0	.0	.0	.0	.0
Hemlock[c]	.0	.0	.0	.0	347.9	.0	.0	.0	.0	.0
Other softwoods[c]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	95.0	237.8	470.9	162.8	3,439.0	67.4	95.6	205.9	68.2	437.1
Sugar maple	16.8	72.7	137.4	63.3	290.2	13.7	34.7	35.2	29.6	113.2
Red maple	12.5	69.1	221.8	110.7	414.1	12.5	25.9	75.1	25.8	139.3
Yellow birch	39.9	185.1	357.0	118.6	700.6	28.5	99.3	156.5	82.6	366.9
Paper birch	21.8	97.7	166.6	40.0	326.1	21.8	31.7	32.6	6.4	92.5
Gray birch	2.6	.9	6.4	1.0	10.9	.0	.0	2.5	.5	3.0
Beech	2.3	24.3	80.6	34.3	141.5	.7	8.7	19.0	10.3	38.7
White ash	41.9	24.8	49.1	21.5	137.3	36.2	6.3	15.5	3.0	61.0
Black ash	.0	.0	2.1	.5	2.6	.0	.0	.0	.0	.0
Aspen	22.3	62.6	73.7	23.2	181.8	16.0	5.4	3.4	1.0	25.8
White oaks	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red oaks	18.4	46.6	31.9	8.1	105.0	18.4	13.5	7.9	1.9	41.7
Basswood	.0	.0	9.4	.7	10.1	.0	.0	6.9	.5	7.4
Elm	.0	.0	5.1	1.0	6.1	.0	.0	3.0	.6	3.6
Other hardwoods	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Total hardwoods	178.5	583.8	1,141.1	422.9	2,326.3	147.8	225.5	357.6	162.2	893.1
Percent of hardwood in each grade	8	25	49	18	100	17	25	40	18	100

[a]International 1/4-inch rule.
[b]Grade 4 applies only to white pine. For hardwoods the volumes in this column are for construction logs.
[c]These species are not divided into standard-lumber grades.

Table 142.--Average annual net change of growing-stock volume on timberland by species and component, Aroostook County, Maine, 1971 - 1981

(In thousands of cubic feet)

Species	Ingrowth	Accretion	Gross growth	Mortality	Cull increment	Net growth	Removals[a]	Net change
Balsam fir	7,892	22,356	30,248	-32,342	-5,009	-7,103	-35,078	-42,181
Spruce	6,980	35,071	42,051	-6,814	-3,252	31,985	-34,297	-2,312
Northern white-cedar	4,733	35,044	39,777	-1,653	-1,751	36,373	-3,508	32,865
Hemlock	233	2,987	3,220	-1,008	-104	2,108	-2,285	-177
Other softwoods	346	3,496	3,842	-408	-155	3,279	-1,850	1,429
Total softwoods	20,184	98,954	119,138	-42,225	-10,271	66,642	-77,018	-10,376
Sugar maple	2,375	11,137	13,512	-776	-1,702	11,034	-4,331	6,703
Yellow birch	1,227	4,140	5,367	-1,403	-1,933	2,031	-1,398	633
Paper birch	3,965	3,340	7,305	-1,575	-1,690	4,040	-1,215	2,825
Beech	1,576	4,790	6,366	-2,048	-4,459	-141	-1,469	-1,610
Aspen	5,607	10,978	16,585	-2,903	-2,374	11,308	-1,906	9,402
Other hardwoods	4,837	5,624	10,461	-6,176	-6,947	-2,662	-2,411	-5,073
Total hardwoods	19,587	40,009	59,596	-14,881	-19,105	25,610	-12,730	12,880
All species	39,771	138,963	178,734	-57,106	-29,376	92,252	-89,748	2,504

[a]Removals are based on data from the Maine Timber Cut Reports issued annually by the Maine Forest Service. Removals for fuelwood and removals from the timberland base as a result of change in land use are only partially accounted for.

Table 143.--Average annual net change of growing-stock volume on timberland by species and component, Capital Region, Maine, 1971 - 1981

(In thousands of cubic feet)

Species	Ingrowth	Accretion	Gross growth	Mortality	Cull increment	Net growth	Removals[a]	Net change
Balsam fir	3,018	936	3,954	-4,097	-224	-367	-1,699	-2,066
Spruce	2,135	5,035	7,170	-62	b	7,098	-2,548	4,550
Pine	3,138	13,120	16,258	-1,078	-716	14,464	-7,106	7,358
Hemlock	654	5,432	6,086	-694	-247	5,145	-2,691	2,454
Other softwoods	433	551	984	-624	b	360	-281	79
Total softwoods	9,378	25,074	34,452	-6,555	-1,197	26,700	-14,325	12,375
Paper birch	971	2,322	3,293	-137	b	3,156	-1,307	1,849
Beech	806	1,152	1,958	b	-561	1,397	-228	1,169
White ash	253	969	1,222	b	b	1,222	-499	723
Aspen	3,958	1,752	5,710	b	b	5,703	-455	5,248
Oak	1,400	4,545	5,945	b	b	5,945	-690	5,255
Other hardwoods	3,040	4,771	7,811	-1,702	-837	5,272	-4,098	1,174
Total hardwoods	10,428	15,511	25,939	-1,846	-1,398	22,695	-7,277	15,418
All species	19,806	40,585	60,391	-8,401	-2,595	49,395	-21,602	27,793

[a]Removals are based on data from the Maine Timber Cut Reports issued annually by the Maine Forest Service. Removals for fuelwood and removals from the timberland base as a result of change in land use are only partially accounted for.
[b]Data insufficient to estimate.

Table 144.--Average annual net change of growing-stock volume on timberland by species and component, Casco Bay, Maine, 1971 - 1981

(In thousands of cubic feet)

Species	Ingrowth	Accretion	Gross growth	Mortality	Cull increment	Net growth	Removals[a]	Net change
Balsam fir	1,594	628	2,222	-131	-12	2,079	-463	1,616
Spruce	187	240	427	-1,877	-407	-1,857	-549	-2,406
Pine	2,232	17,790	20,022	-3,953	-5,379	10,690	-10,529	161
Hemlock	926	5,825	6,751	-441	-595	5,715	-2,304	3,411
Other softwoods	302	1,214	1,516	-474	b	1,042	-96	946
Total softwoods	5,241	25,697	30,938	-6,876	-6,393	17,669	-13,941	3,728
Yellow birch	185	362	547	-235	-707	-395	-399	-794
Paper birch	669	1,246	1,915	b	-56	1,859	-901	958
White ash	580	974	1,554	b	-165	1,389	-149	1,240
Aspen	2,100	2,016	4,116	-148	-25	3,943	-251	3,692
Oak	2,134	4,727	6,861	-186	-893	5,782	-955	4,827
Other hardwoods	4,830	6,734	11,564	-932	-2,030	8,602	-2,678	5,924
Total hardwoods	10,498	16,059	26,557	-1,501	-3,876	21,180	-5,333	15,847
All species	15,739	41,756	57,495	-8,377	-10,269	38,849	-19,274	19,575

[a]Removals are based on data from the Maine Timber Cut Reports issued annually by the Maine Forest Service. Removals for fuelwood and removals from the timberland base as a result of change in land use are only partially accounted for.
[b]Data insufficient to estimate.

Table 145.--Average annual net change of growing-stock volume on timberland by species and component, Hancock County, Maine, 1971 - 1981

(In thousands of cubic feet)

Species	Ingrowth	Accretion	Gross growth	Mortality	Cull increment	Net growth	Removals[a]	Net change
Balsam fir	2,907	1,387	4,294	-3,122	-509	663	-872	-209
Spruce	1,761	7,217	8,978	-1,751	-863	6,364	-3,239	3,125
Pine	1,640	3,119	4,759	-57	b	4,702	-1,297	3,405
Other softwoods	910	3,841	4,751	-1,811	-1,820	1,120	-1,274	-154
Total softwoods	7,218	15,564	22,782	-6,741	-3,192	12,849	-6,682	6,167
Sugar maple	18	124	142	b	-175	-33	-244	-277
Yellow birch	112	718	830	-19	-40	771	-136	635
Paper birch	911	1,958	2,869	-151	-155	2,563	-725	1,838
Beech	87	375	462	-345	-662	-545	-173	-718
White ash	293	256	549	b	-591	-42	-194	-236
Aspen	938	2,129	3,067	-12	-9	3,046	-160	2,886
Oak	55	369	424	-479	-409	-464	-91	-555
Other hardwoods	1,387	3,362	4,749	-171	-2,374	2,204	-915	1,289
Total hardwoods	3,801	9,291	13,092	-1,177	-4,415	7,500	-2,638	4,862
All species	11,019	24,855	35,874	-7,918	-7,607	20,349	-9,320	11,029

[a] Removals are based on data from the Maine Timber Cut Reports issued annually by the Maine Forest Service. Removals for fuelwood and removals from the timberland base as a result of change in land use are only partially accounted for.

[b] Data insufficient to estimate.

Table 146.--Average annual net change of growing-stock volume on timberland by species and component, Penobscot County, Maine, 1971 - 1981

(In thousands of cubic feet)

Species	Ingrowth	Accretion	Gross growth	Mortality	Cull increment	Net growth	Removals[a]	Net change
Balsam fir	2,844	3,864	6,708	-14,517	-3,470	-11,279	-6,733	-18,012
Tamarack	332	328	660	-88	-38	534	-118	416
Spruce	2,373	8,332	10,705	-4,555	-640	5,510	-9,290	-3,780
Pine	1,414	5,685	7,099	-246	-385	6,468	-3,743	2,725
Northern white-cedar	3,004	6,233	9,237	-824	-1,359	7,054	-989	6,065
Hemlock	1,757	6,219	7,976	-346	-568	7,062	-4,983	2,079
Total softwoods	11,724	30,661	42,385	-20,576	-6,460	15,349	-25,856	-10,507
Sugar maple	452	3,201	3,653	-768	-624	2,261	-2,438	-177
Yellow birch	222	1,397	1,619	-845	-463	311	-1,054	-743
Paper birch	1,304	3,819	5,123	-448	-842	3,833	-1,478	2,355
Beech	1,289	3,190	4,479	-558	-1,714	2,207	-1,203	1,004
White ash	704	939	1,643	-313	-220	1,110	-932	178
Aspen	2,996	9,040	12,036	-646	-314	11,076	-1,124	9,952
Other hardwoods	1,435	6,244	7,679	-4,228	-4,050	-599	-3,870	-4,469
Total hardwoods	8,402	27,830	36,232	-7,806	-8,227	20,199	-12,099	8,100
All species	20,126	58,491	78,617	-28,382	-14,687	35,548	-37,955	-2,407

[a]Removals are based on data from the Maine Timber Cut Reports issued annually by the Maine Forest Service. Removals for fuelwood and removals from the timberland base as a result of change in land use are only partially accounted for.

Table 147.--Average annual net change of growing-stock volume on timberland by species and component, Piscataquis County, Maine, 1971 - 1981

(In thousands of cubic feet)

Species	Ingrowth	Accretion	Gross growth	Mortality	Cull increment	Net growth	Removals[a]	Net change
Balsam fir	8,447	18,058	26,505	-17,848	-3,770	4,887	-20,530	-15,643
Spruce	7,200	32,578	39,778	-4,810	-2,896	32,072	-20,143	11,929
Northern white-cedar	669	5,268	5,937	-1,799	-1,525	2,613	-567	2046
Other softwoods	225	3,099	3,324	-203	-178	2,943	-4,192	-1,249
Total softwoods	16,541	59,003	75,544	-24,660	-8,369	42,515	-45,432	-2,917
Sugar maple	322	2,436	2,758	-433	-2,222	103	-4,331	-4,228
Yellow birch	605	3,247	3,852	-671	-905	2,276	-1,812	464
Paper birch	621	1,802	2,423	-459	-639	1,325	-1,576	-251
Beech	540	1,656	2,196	-1,915	-3,760	-3,479	-1,610	-5,089
White ash	171	708	879	-299	-574	6	-559	-553
Aspen	4,462	6,253	10,715	-911	-738	9,066	-588	8,478
Other hardwoods	2,800	6,461	9,261	-1,438	-1,018	6,805	-2,504	4,301
Total hardwoods	9,521	22,563	32,084	-6,126	-9,856	16,102	-12,980	3,122
All species	26,062	81,566	107,628	-30,786	-18,225	58,617	-58,412	205

[a]Removals are based on data from the Maine Timber Cut Reports issued annually by the Maine Forest Service. Removals for fuelwood and removals from the timberland base as a result of change in land use are only partially accounted for. Land use change removals, which averaged an estimated 3.1 million cubic feet per year for the 11-year period, were due to the one-time withdrawals for the Allagash Waterway.

Table 148.--Average annual net change of growing-stock volume on timberland by species and component, Somerset County, Maine, 1971 - 1981

(In thousands of cubic feet)

Species	Ingrowth	Accretion	Gross growth	Mortality	Cull increment	Net growth	Removals[a]	Net change
Balsam fir	7,854	16,475	24,329	-13,687	-5,085	5,557	-16,534	-10,977
Tamarack	35	354	389	-253	b	136	-83	53
Spruce	6,005	22,674	28,679	-3,788	-1,430	23,461	-13,759	9,702
Pine	5,072	5,300	10,372	-816	-268	9,288	-2,891	6,397
Northern white-cedar	924	7,924	8,848	-476	-802	7,570	-789	6,781
Hemlock	900	4,148	5,048	-371	-684	3,993	-1,570	2,423
Total softwoods	20,790	56,875	77,665	-19,391	-8,269	50,005	-35,626	14,379
Sugar maple	1,696	7,860	9,556	-703	-990	7,863	-3,421	4,442
Yellow birch	1,213	4,842	6,055	-480	-1,422	4,153	-1,897	2,256
Paper birch	1,813	6,055	7,868	-712	-695	6,461	-2,146	4,315
Beech	1,143	3,742	4,885	-457	-3,019	1,409	-695	714
White ash	859	1,313	2,172	-590	b	1,582	-406	1,176
Aspen	1,600	4,321	5,921	-1,809	b	4,112	-562	3,550
Other hardwoods	3,120	9,534	12,654	-3,605	-3,928	5,121	-2,359	2,762
Total hardwoods	11,444	37,667	49,111	-8,356	-10,054	30,701	-11,486	19,215
All species	32,234	94,542	126,776	-27,747	-18,323	80,706	-47,112	33,594

[a]Removals are based on data from the Maine Timber Cut Reports issued annually by the Maine Forest Service. Removals for fuelwood and removals from the timberland base as a result of change in land use are only partially accounted for.
[b]Data insufficient to estimate.

Table 149.--Average annual net change of growing-stock volume on timberland by species and component, Washington County, Maine, 1971 - 1981

(In thousands of cubic feet)

Species	Ingrowth	Accretion	Gross growth	Mortality	Cull increment	Net growth	Removals[a]	Net change
Balsam fir	2,356	5,862	8,218	-9,022	-3,455	-4,259	-5,360	-9,619
Tamarack	b	b	b	b	b	-1,915	-71	-1,986
Spruce	2,942	8,997	11,939	-2,598	-2,606	6,735	-11,444	-4,709
Pine	541	2,770	3,311	-136	-1,488	1,687	-2,632	-945
Northern white-cedar	703	2,900	3,603	-1,307	-1,815	481	-184	297
Hemlock	1,324	4,220	5,544	-29	-404	5,111	-3,282	1,829
Total softwoods	7,866	24,751	32,617	-14,826	-9,951	7,840	-22,973	-15,133
Sugar maple	399	2,564	2,963	-44	-1,272	1,647	-942	705
Yellow birch	354	833	1,187	-420	b	767	-764	3
Paper birch	1,361	1,917	3,278	-821	-378	2,079	-2,641	-562
Beech	1,132	1,062	2,194	-360	-829	1,005	-482	523
Aspen	2,000	3,555	5,555	-17	-949	4,589	-1,826	2,763
Oak	528	934	1,462	-821	-701	-60	-218	-278
Other hardwoods	1,093	2,269	3,362	-1,175	-2,010	177	-6,609	-6,432
Total hardwoods	6,867	13,134	20,001	-3,658	-6,139	10,204	-13,482	-3,278
All species	14,733	37,885	52,618	-18,484	-16,090	18,044	-36,455	-18,411

[a]Removals are based on data from the Maine Timber Cut Reports issued annually by the Maine Forest Service. Removals for fuelwood and removals from the timberland base as a result of change in land use are only partially accounted for.
[b]Data insufficient to estimate.

Table 150.--Average annual net change of growing-stock volume on timberland by species and component, Western Maine, 1971 - 1981

(In thousands of cubic feet)

Species	Ingrowth	Accretion	Gross growth	Mortality	Cull increment	Net growth	Removals[a]	Net change
Balsam fir	7,509	11,950	19,459	-8,018	-1,317	10,124	-5,563	4,561
Spruce	2,853	11,592	14,445	-2,386	-554	11,505	-5,837	5,668
Pine	3,532	13,342	16,874	-2,519	-271	14,084	-9,089	4,995
Hemlock	146	4,633	4,779	-195	-43	4,541	-3,314	1,227
Other softwoods	147	565	712	-1,415	-479	-1,182	-137	-1,319
Total softwoods	14,187	42,082	56,269	-14,533	-2,664	39,072	-23,940	15,132
Sugar maple	1,862	2,805	4,667	-717	-1,287	2,663	-5,375	-2,712
Yellow birch	2,865	9,731	12,596	-1,673	-1,245	9,678	-5,112	4,566
Paper birch	6,629	8,378	15,007	-204	-40	14,763	-5,575	9,188
Beech	1,176	3,768	4,944	-1,240	-709	2,995	-2,759	236
White ash	2,088	2,285	4,373	-123	b	4,250	-954	3,296
Aspen	2,419	3,157	5,576	-1,032	-230	4,314	-1,442	2,872
Oak	476	509	985	-793	-126	66	-1,700	-1,634
Other hardwoods	5,884	9,940	15,824	-2,341	-527	12,956	-5,085	7,871
Total hardwoods	23,399	40,573	63,972	-8,123	-4,164	51,685	-28,002	23,683
All species	37,586	82,655	120,241	-22,656	-6,828	90,757	-51,942	38,815

[a]Removals are based on data from the Maine Timber Cut Reports issued annually by the Maine Forest Service. Removals for fuelwood and removals from the timberland base as a result of change in land use are only partially accounted for.
[b]Data insufficient to estimate.

Table 151.--Land area by county and land use classes, Maine, 1982

(In thousands of acres)

County	Forest land area					Non-forest	Total land area
	Timberland	Productive reserved	Unproductive[a]	Urban	Total forest		
Androscoggin	214.1	.9	3.3	-	218.3	86.8	305.1
Aroostook	3,768.4	10.3	32.5	-	3,811.2	490.4	4,301.6
Cumberland	406.5	2.0	-	-	408.5	152.4	560.9
Franklin	1,014.2	4.3	16.4	-	1,034.9	52.6	1,087.5
Hancock	776.3	29.7	32.1	-	838.1	145.7	983.8
Kennebec	400.8	.8	12.0	2.1	415.7	145.2	560.9
Knox	165.4	5.3	-	-	170.7	66.0	236.7
Lincoln	224.1	.1	-	-	224.2	69.1	293.3
Oxford	1,190.6	4.9	5.8	-	1,201.3	112.7	1,314.0
Penobscot	1,872.7	1.4	67.3	-	1,941.4	253.6	2,195.0
Piscataquis	2,238.1	192.7	32.6	-	2,463.4	87.8	2,551.2
Sagadahoc	124.7	1.0	3.2	-	128.9	35.6	164.5
Somerset	2,334.5	.2	11.0	-	2,345.7	169.8	2,515.5
Waldo	362.1	3.8	9.2	-	375.1	92.0	467.1
Washington	1,454.2	12.6	47.7	-	1,514.5	140.4	1,654.9
York	513.5	2.0	-	-	515.5	129.3	644.8
All counties	17,060.2	272.0	273.1	2.1	17,607.4	2,229.4	19,836.8

[a]Includes 11,000 acres of unproductive reserved forest land.

Table 152.--Area of timberland by county and forest-type group, Maine, 1971

(In thousands of acres)

County	Forest-type group									All groups
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	Indeter-minate	
Androscoggin	128.7	-	-	-	-	-	51.1	37.3	-	217.1
Aroostook	36.8	2,533.8	-	-	-	24.3	986.4	160.0	-	3,741.3
Cumberland	274.2	-	-	-	48.6	10.8	62.4	25.1	-	421.1
Franklin	29.6	418.1	-	-	-	11.3	472.9	77.9	-	1,009.8
Hancock	98.8	416.6	-	-	11.0	11.0	152.0	30.2	-	719.6
Kennebec	110.8	48.9	-	-	11.7	24.3	162.1	23.3	23.6	404.7
Knox	20.6	37.8	-	-	23.8	16.5	56.5	20.9	-	176.1
Lincoln	123.5	26.3	-	-	-	26.3	27.9	12.6	-	216.6
Oxford	200.2	288.4	-	-	51.4	12.9	505.2	54.7	12.2	1,125.0
Penobscot	228.3	986.6	-	-	-	62.6	493.2	76.3	13.2	1,860.2
Piscataquis	38.1	1,386.9	-	-	-	25.3	747.2	49.4	-	2,246.9
Sagadahoc	61.1	11.8	-	-	23.7	-	25.7	9.4	-	131.7
Somerset	146.8	1,106.1	-	-	-	36.2	823.2	173.2	-	2,285.5
Waldo	61.2	173.2	-	12.0	25.7	24.9	51.5	24.9	-	373.4
Washington	82.2	929.4	-	-	20.9	31.0	205.1	154.5	10.3	1,433.4
York	264.8	14.4	13.7	14.4	54.2	27.1	64.0	40.1	27.1	519.8
All counties	1,905.7	8,378.3	13.7	26.4	271.0	344.5	4,886.4	969.8	86.4	16,882.2

Table 153.--Area of timberland by county and forest-type group, Maine, 1982

(In thousands of acres)

County	Forest-type group								All groups
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Androscoggin	90.2	12.9	-	4.3	12.8	4.3	59.4	30.2	214.1
Aroostook	42.3	2,237.6	-	-	-	59.7	1,032.7	396.1	3,768.4
Cumberland	263.9	13.2	-	8.3	25.2	8.2	79.5	8.2	406.5
Franklin	52.1	389.6	-	-	-	-	458.0	114.5	1,014.2
Hancock	92.9	403.0	-	-	18.9	9.5	186.0	66.0	776.3
Kennebec	184.6	19.9	-	4.0	16.0	12.1	112.0	52.2	400.8
Knox	25.0	65.3	-	-	16.7	-	41.6	16.8	165.4
Lincoln	96.5	49.8	-	-	34.3	11.9	27.8	3.8	224.1
Oxford	287.3	234.1	-	10.6	31.8	5.4	506.5	114.9	1,190.6
Penobscot	315.2	805.1	-	-	-	47.9	504.9	199.6	1,872.7
Piscataquis	96.1	1,357.9	-	-	10.5	10.5	658.6	104.5	2,238.1
Sagadahoc	57.7	4.4	-	4.8	13.8	4.5	35.0	4.5	124.7
Somerset	175.9	1,255.9	-	-	10.4	20.7	747.1	124.5	2,334.5
Waldo	52.7	108.8	-	-	12.0	7.7	141.2	39.7	362.1
Washington	95.0	804.7	-	-	21.6	32.1	318.5	182.3	1,454.2
York	267.3	8.3	8.3	4.2	82.5	3.7	92.1	47.1	513.5
All counties	2,194.7	7,770.5	8.3	36.2	306.5	238.2	5,000.9	1,504.9	17,060.2

Table 154.--Area of timberland by county and stand-size class, Maine, 1971

(In thousands of acres)

County	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Androscoggin	63.2	84.4	69.5	-	217.1
Aroostook	1,952.1	1,173.5	615.7	-	3,741.3
Cumberland	157.9	153.6	109.6	-	421.1
Franklin	308.6	558.5	142.7	-	1,009.8
Hancock	207.2	270.4	242.0	-	719.6
Kennebec	104.8	72.9	227.0	-	404.7
Knox	70.1	32.5	73.5	-	176.1
Lincoln	50.6	83.0	83.0	-	216.6
Oxford	375.5	493.8	243.5	12.2	1,125.0
Penobscot	800.9	645.4	413.9	-	1,860.2
Piscataquis	1,234.6	636.6	375.7	-	2,246.9
Sagadahoc	35.3	35.7	60.7	-	131.7
Somerset	975.8	969.8	339.9	-	2,285.5
Waldo	76.4	128.2	168.8	-	373.4
Washington	399.4	713.7	320.3	-	1,433.4
York	222.0	41.9	255.9	-	519.8
All counties	7,034.4	6,093.9	3,741.7	12.2	16,882.2

Table 155.--Area of timberland by county and stand-size class, Maine, 1982

(In thousands of acres)

County	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Androscoggin	86.1	98.7	29.3	-	214.1
Aroostook	2,114.1	1,254.1	391.8	8.4	3,768.4
Cumberland	221.8	146.5	33.2	5.0	406.5
Franklin	391.3	544.8	78.1	-	1,014.2
Hancock	346.9	307.3	112.4	9.7	776.3
Kennebec	196.2	184.1	20.5	-	400.8
Knox	89.2	55.2	21.0	-	165.4
Lincoln	111.5	69.8	42.8	-	224.1
Oxford	521.2	566.4	103.0	-	1,190.6
Penobscot	890.5	849.7	123.5	9.0	1,872.7
Piscataquis	1,284.6	668.1	285.4	-	2,238.1
Sagadahoc	77.5	35.0	12.2	-	124.7
Somerset	1,256.8	839.7	238.0	-	2,334.5
Waldo	105.1	200.7	56.3	-	362.1
Washington	549.3	613.6	291.3	-	1,454.2
York	275.2	162.1	76.2	-	513.5
All counties	8,517.3	6,595.8	1,915.0	32.1	17,060.2

Table 156.--Area of timberland by county, and potential site productivity class, Maine, 1982

(In thousands of acres)

County	Potential site productivity class				All classes
	Poor	Fair	Good	Very good	
Androscoggin	72.9	115.5	21.4	4.3	214.1
Aroostook	1,416.6	1,877.1	448.9	25.8	3,768.4
Cumberland	157.1	228.3	21.1	-	406.5
Franklin	345.5	565.3	82.9	20.5	1,014.2
Hancock	393.7	326.8	55.8	-	776.3
Kennebec	160.7	156.3	63.8	20.0	400.8
Knox	79.0	74.0	12.4	-	165.4
Lincoln	95.6	120.9	7.6	-	224.1
Oxford	682.0	383.2	114.8	10.6	1,190.6
Penobscot	887.4	909.1	76.2	-	1,872.7
Piscataquis	800.6	1,283.5	154.0	-	2,238.1
Sagadahoc	66.6	53.6	4.5	-	124.7
Somerset	1,027.7	1,089.2	217.6	-	2,334.5
Waldo	265.8	68.3	24.0	4.0	362.1
Washington	466.9	880.7	74.5	32.1	1,454.2
York	244.2	227.6	41.7	-	513.5
All counties	7,162.3	8,359.4	1,421.2	117.3	17,060.2

Table 157.--Area of timberland by county and cubic foot stand-volume class, Maine, 1982

(In thousands of acres)

County	Stand-volume class (cubic feet per acre)						Total
	0-499	500-999	1000-1499	1500-1999	2000-2499	2500+	
Androscoggin	37.7	46.9	47.2	38.8	26.3	17.2	214.1
Aroostook	459.8	576.9	797.1	730.5	710.6	493.5	3,768.4
Cumberland	50.7	79.5	104.4	92.2	37.9	41.8	406.5
Franklin	87.3	154.6	252.3	271.7	144.7	103.6	1,014.2
Hancock	140.1	204.8	158.6	131.4	85.7	55.7	776.3
Kennebec	36.4	91.8	112.1	84.2	40.2	36.1	400.8
Knox	25.2	20.9	32.3	35.2	32.2	19.6	165.4
Lincoln	46.7	39.2	58.0	37.9	15.4	26.9	224.1
Oxford	110.3	272.3	254.9	297.8	159.5	95.8	1,190.6
Penobscot	227.5	400.1	421.4	450.4	228.9	144.4	1,872.7
Piscataquis	230.9	354.7	389.2	471.3	397.8	394.2	2,238.1
Sagadahoc	25.9	25.9	27.5	22.7	13.8	8.9	124.7
Somerset	248.4	341.4	487.5	561.0	384.0	312.2	2,334.5
Waldo	79.6	87.9	80.9	72.8	32.7	8.2	362.1
Washington	355.8	349.6	326.9	232.1	147.7	42.1	1,454.2
York	112.8	70.8	104.2	87.7	71.1	66.9	513.5
All counties	2,275.1	3,117.3	3,654.5	3,617.7	2,528.5	1,867.1	17,060.2

Table 158.--Area of timberland by county and green ton stand-volume class, Maine, 1982

(In thousands of acres)

County	Stand-volume class (green tons per acre)				All classes
	0-49	50-99	100-149	150+	
Androscoggin	41.9	85.6	73.7	12.9	214.1
Aroostook	827.0	1,564.2	1,226.1	151.1	3,768.4
Cumberland	67.4	175.4	138.7	25.0	406.5
Franklin	127.9	502.8	321.4	62.1	1,014.2
Hancock	149.2	354.4	216.8	55.9	776.3
Kennebec	44.4	208.0	124.3	24.1	400.8
Knox	33.6	48.9	70.5	12.4	165.4
Lincoln	51.1	92.8	60.9	19.3	224.1
Oxford	214.6	571.8	372.2	32.0	1,190.6
Penobscot	360.9	841.0	584.0	86.8	1,872.7
Piscataquis	445.5	849.7	767.6	175.3	2,238.1
Sagadahoc	47.4	41.3	31.6	4.4	124.7
Somerset	403.6	850.8	944.3	135.8	2,334.5
Waldo	95.4	125.3	121.0	20.4	362.1
Washington	398.0	675.9	359.2	21.1	1,454.2
York	105.3	182.5	154.6	71.1	513.5
All counties	3,413.2	7,170.4	5,566.9	909.7	17,060.2

Table 159.--Area of timberland by county and stocking class of growing-stock trees, Maine, 1982

(In thousands of acres)

County	Stocking class					All classes
	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked	
Androscoggin	-	12.5	21.3	59.9	120.4	214.1
Aroostook	16.8	221.9	692.6	872.8	1,964.3	3,768.4
Cumberland	9.1	37.6	62.6	138.1	159.1	406.5
Franklin	8.6	49.7	163.3	369.3	423.3	1,014.2
Hancock	9.7	55.6	167.5	215.4	328.1	776.3
Kennebec	-	24.3	71.9	104.3	200.3	400.8
Knox	-	12.6	20.8	50.1	81.9	165.4
Lincoln	-	16.2	30.7	111.8	65.4	224.1
Oxford	.0	26.9	212.4	367.9	583.4	1,190.6
Penobscot	9.0	152.4	372.3	523.9	815.1	1,872.7
Piscataquis	10.6	118.6	405.4	485.2	1,218.3	2,238.1
Sagadahoc	-	17.6	26.3	45.2	35.6	124.7
Somerset	.0	124.2	269.3	716.1	1,224.9	2,334.5
Waldo	-	31.1	64.4	72.4	194.2	362.1
Washington	11.3	141.1	349.9	327.1	624.8	1,454.2
York	4.1	48.6	79.2	172.3	209.3	513.5
All counties	79.2	1,090.9	3,009.9	4,631.8	8,248.4	17,060.2

Table 160.--Net volume of growing-stock trees on timberland by county and forest-type group, Maine, 1982

(In milions of cubic feet)

County	Forest-type group								All groups
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Androscoggin	156.6	12.0	-	8.3	15.2	4.9	45.0	44.7	286.7
Aroostook	48.8	3,721.4	-	-	-	35.9	1,155.0	387.9	5,349.0
Cumberland	412.6	6.7	-	9.2	33.3	1.0	78.7	3.7	545.2
Franklin	98.0	619.6	-	-	-	-	585.8	139.5	1,442.9
Hancock	162.4	550.8	-	-	5.6	4.5	131.9	69.1	924.3
Kennebec	255.8	24.6	-	10.1	18.7	11.7	133.8	55.2	509.9
Knox	40.3	96.7	-	-	18.8	-	53.7	10.3	219.8
Lincoln	134.2	69.8	-	-	40.9	9.8	24.3	3.7	282.7
Oxford	444.2	319.0	-	12.8	23.3	1.3	675.2	109.6	1,585.4
Penobscot	466.3	1,007.0	-	-	-	24.7	478.8	228.9	2,205.7
Piscataquis	158.0	2,339.8	-	-	23.9	8.3	821.2	99.7	3,450.9
Sagadahoc	75.1	1.5	-	1.9	12.9	3.2	42.8	9.1	146.5
Somerset	250.3	1,993.4	-	-	14.6	19.3	972.3	171.3	3,421.2
Waldo	63.5	141.7	-	-	21.9	1.2	132.5	36.9	397.7
Washington	137.1	831.6	-	-	16.0	15.3	259.7	99.1	1,358.8
York	476.3	12.4	2.9	.9	79.1	.9	75.5	21.4	669.4
All counties	3,379.5	11,748.0	2.9	43.2	324.2	142.0	5,666.2	1,490.1	22,796.1

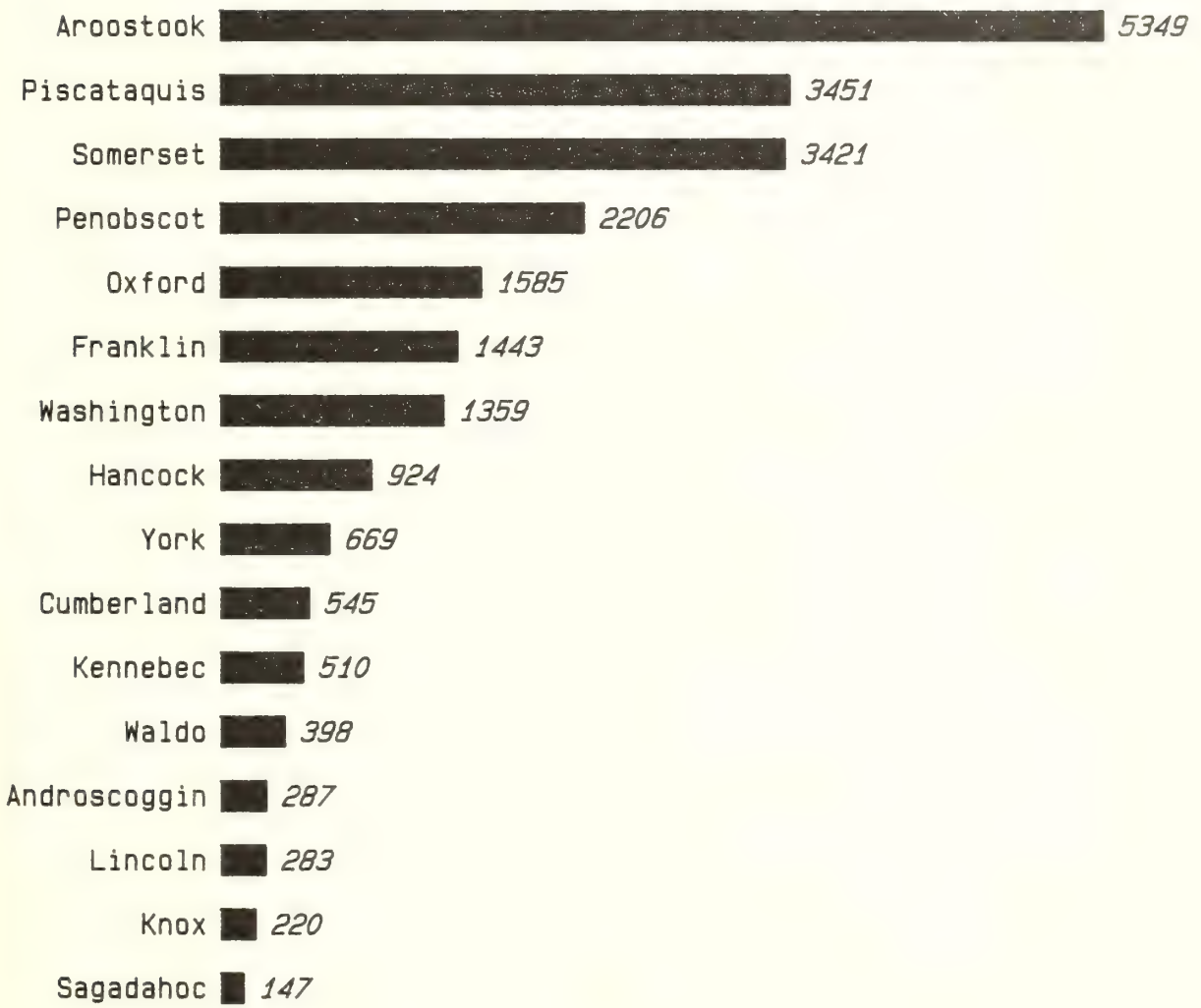
Table 161.--Net volume of growing-stock trees on timberland by county and stand-size class, Maine, 1982

(In millions of cubic feet)

County	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Androscoggin	150.3	130.8	5.6	-	286.7
Aroostook	3,701.7	1,560.1	87.2	-	5,349.0
Cumberland	370.5	166.5	8.2	-	545.2
Franklin	734.0	693.5	15.4	-	1,442.9
Hancock	589.2	312.9	22.2	-	924.3
Kennebec	309.2	199.5	1.2	-	509.9
Knox	158.3	59.7	1.8	-	219.8
Lincoln	208.3	66.8	7.6	-	282.7
Oxford	901.6	649.6	34.2	-	1,585.4
Penobscot	1,382.8	800.0	22.9	-	2,205.7
Piscataquis	2,450.0	904.1	96.8	-	3,450.9
Sagadahoc	102.2	39.9	4.4	-	146.5
Somerset	2,274.6	1,087.3	59.3	-	3,421.2
Waldo	173.9	204.6	19.2	-	397.7
Washington	772.6	556.3	29.9	-	1,358.8
York	493.8	164.3	11.3	-	669.4
All counties	14,773.0	7,595.9	427.2	-	22,796.1

County Ranking By Growing-stock Volume

Maine 1982



(In millions of cubic feet)

Table 162.--Net volume of growing-stock trees on timberland by species and county, Maine, 1971

(In millions of cubic feet)

Species	Androscoggin	Aroostook	Cumberland	Franklin	Hancock	Kennebec	Knox	Lincoln
Balsam fir	4.6	1,821.5	4.5	324.7	90.0	28.5	24.2	14.1
Tamarack	.0	30.1	.0	6.2	8.6	1.7	.0	1.2
White spruce	.0	274.9	.0	50.5	26.9	7.8	2.7	1.6
Black spruce	.0	41.0	.0	.2	5.7	.0	.0	5.1
Red spruce	2.1	1,271.3	1.5	187.2	261.8	.0	21.7	15.5
Red pine	.0	.0	3.2	.0	1.3	2.6	.0	.0
White pine	109.4	54.2	185.2	40.3	29.8	54.8	14.3	63.9
Northern white-cedar	.0	383.5	.0	20.3	86.1	6.7	.0	.7
Hemlock	24.6	88.9	107.5	6.1	69.5	46.2	13.3	24.4
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	140.7	3,965.4	301.9	635.5	579.7	148.3	76.2	126.5
Sugar maple	3.0	343.0	6.6	85.9	13.9	20.6	13.9	.0
Red maple	30.8	212.8	37.3	94.7	76.9	51.2	23.9	24.0
Yellow birch	5.4	151.5	13.3	99.0	10.8	10.7	1.2	5.5
Paper birch	31.5	103.1	14.2	107.7	41.8	9.4	10.0	18.9
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0
Beech	3.5	194.0	24.8	39.2	13.9	5.7	1.5	2.0
White ash	2.0	29.6	5.0	21.5	14.2	16.5	1.8	.0
Black ash	.0	35.5	1.0	.0	.0	4.0	3.9	.0
Aspen	19.9	273.2	4.2	106.3	14.5	18.2	4.1	5.0
White oaks	.0	.0	.9	.0	.0	.0	.0	.0
Red oaks	29.2	.0	53.6	8.0	12.1	7.9	12.4	6.1
Basswood	.0	1.2	.0	5.6	1.0	26.7	1.5	.0
Elm	.6	11.1	1.2	1.3	.0	20.5	4.5	.8
Other hardwoods	1.0	2.0	.0	2.2	.0	.0	.0	1.9
Total hardwoods	126.9	1,357.0	162.1	571.4	199.1	191.4	78.7	64.2
Total, all species	267.6	5,322.4	464.0	1,206.9	778.8	339.7	154.9	190.7

Table 162.--continued

(In millions of cubic feet)

Species	Oxford	Penobscot	Piscataquis	Sagadahoc	Somerset	Waldo	Washington	York	Total
Balsam fir	207.2	434.6	843.9	4.8	938.3	53.5	252.0	3.8	5,050.2
Tamarack	.0	10.5	3.6	.0	3.8	5.3	35.2	4.5	110.7
White spruce	21.4	38.3	91.0	.0	107.7	10.6	19.0	.0	652.4
Black spruce	.0	30.5	46.7	.0	10.5	14.0	29.8	5.1	188.6
Red spruce	162.2	464.8	1,030.6	22.0	682.5	43.9	484.6	32.9	4,684.6
Red pine	6.3	2.3	2.9	.0	1.6	1.1	10.2	.8	32.3
White pine	182.8	117.8	162.0	50.9	51.8	35.2	62.7	260.5	1,475.6
Northern white-cedar	15.0	175.0	239.4	1.0	145.0	35.0	106.0	.0	1,213.7
Hemlock	110.1	270.8	81.1	15.2	77.2	17.5	122.3	71.9	1,146.6
Other softwoods	.0	.0	.0	.0	1.6	.0	.0	.0	1.6
Total softwoods	705.0	1,544.6	2,501.2	93.9	2,020.0	216.1	1,121.8	379.5	14,556.3
Sugar maple	105.2	114.8	270.6	.0	265.4	10.1	21.1	4.5	1,278.6
Red maple	135.5	228.8	167.5	12.3	210.7[a]	44.3	203.9	50.6	1,605.2
Yellow birch	120.6	66.4	136.5	.0	183.5	5.5	25.7	4.9	840.5
Paper birch	90.4	60.0	97.6	3.9	147.9	20.9	91.6	6.7	855.6
Gray birch	.0	.0	3.6	.0	.0	.0	.0	.0	3.6
Beech	63.5	73.5	148.7	.0	76.6	1.4	14.5	9.8	672.6
White ash	6.0	30.6	29.5	.0	17.2	5.3	11.5	.9	191.6
Black ash	3.1	22.4	15.0	.0	8.8	1.7	10.4	1.1	106.9
Aspen	25.0	59.7	46.5	2.6	96.7	9.3	60.7	2.0	747.9
White oaks	2.7	.0	.0	.0	.0	.0	.0	3.0	6.6
Red oaks	64.5	8.2	7.3	20.1	.8	17.8	12.5	40.6	301.1
Basswood	1.1	6.5	7.2	.0	16.6	.0	.0	1.3	68.7
Elm	.5	17.7	16.6	.9	11.3	15.1	.5	2.9	105.5
Other hardwoods	1.5	1.4	.8	.0	2.9	2.1	.0	10.4	26.2
Total hardwoods	619.6	690.0	947.4	39.8	1,038.4	133.5	452.4	138.7	6,810.6
Total, all species	1,324.6	2,234.6	3,448.6	133.7	3,058.4	349.6	1,574.2	518.2	21,366.9

[a]Includes 1.4 million cubic feet of silver maple.

Table 163.--Net volume of growing-stock trees on timberland by species and county, Maine, 1982

(In millions of cubic feet)

Species	Androscoggin	Aroostook	Cumberland	Franklin	Hancock	Kennebec	Knox	Lincoln
Balsam fir	20.2	1,374.3	9.1	340.5	87.2	21.9	17.3	9.5
Tamarack	1.0	42.2	.0	.3	7.3	4.4	1.8	1.5
White spruce	.0	253.7	.0	18.1	8.6	1.0	2.5	.9
Black spruce	.0	223.6	.3	23.4	16.0	.0	.0	.0
Red spruce	4.3	1,085.2	9.1	224.6	311.1	5.3	72.8	57.2
Red pine	.7	.0	9.2	1.1	7.1	.0	.0	1.2
White pine	91.3	57.2	203.9	55.2	68.9	135.2	16.5	80.8
Northern white-cedar	.0	731.9	.0	18.1	70.2	11.4	.7	.4
Hemlock	32.0	87.0	98.7	35.5	84.7	61.1	14.6	27.2
Other softwoods	.0	.3	4.3	.2	.0	.0	.0	.0
Total softwoods	149.5	3,855.4	334.6	717.0	661.1	240.3	126.2	178.7
Sugar maple	2.5	414.0	4.1	87.0	10.3	12.0	1.2	4.4
Red maple	41.3	180.0	58.6	164.0	88.3	86.1	41.7	32.0
Yellow birch	.8	158.2	5.4	130.9	19.2	7.8	1.6	3.1
Paper birch	10.4	133.0	21.9	183.5	66.1	28.7	14.1	9.4
Gray birch	2.1	.2	4.9	9.7	2.6	6.0	.2	.5
Beech	4.1	176.9	21.5	15.7	4.4	11.3	1.0	2.7
White ash	4.1	13.9	7.7	42.9	11.1	13.7	4.9	1.8
Black ash	.2	38.7	.0	4.0	3.9	.5	.1	.0
Aspen	42.4	372.8	11.5	77.4	52.6	53.5	7.8	3.9
White oaks	.0	.0	6.2	.0	.0	.2	.0	.1
Red oaks	29.1	1.1	65.8	2.5	4.7	35.4	20.7	39.6
Basswood	.0	.1	.0	3.7	.0	2.9	.0	.4
Elm	.1	4.0	.4	3.2	.0	1.9	.0	.0
Other hardwoods	.1	.7	2.6	1.4	.0	9.6	.3	6.1
Total hardwoods	137.2	1,493.6	210.6	725.9	263.2	269.6	93.6	104.0
Total, all species	286.7	5,349.0	545.2	1,442.9	924.3	509.9	219.8	282.7

Table 163.--continued

(In millions of cubic feet)

Species	Oxford	Penobscot	Piscataquis	Sagadahoc	Somerset	Waldo	Washington	York	Total
Balsam fir	249.8	218.5	670.3	4.9	819.8	43.7	139.5	5.3	4,031.8
Tamarack	1.3	15.5	11.8	1.2	4.4	9.5	12.0	.9	115.1
White spruce	26.1	33.1	85.5	.0	68.7	11.5	45.3	.6	555.6
Black spruce	2.5	13.9	80.9	.0	61.8	.9	26.8	1.4	451.5
Red spruce	199.2	441.2	1,134.3	5.1	774.9	32.1	406.1	10.3	4,772.8
Red pine	12.0	19.5	.0	.0	10.6	.0	4.1	2.9	68.4
White pine	225.0	133.3	155.3	52.6	113.5	37.6	57.8	251.5	1,735.6
Northern white-cedar	4.8	247.8	262.1	4.1	218.2	22.0	109.5	.0	1,701.2
Hemlock	96.4	295.7	68.6	10.0	103.3	31.6	143.7	124.6	1,314.7
Other softwoods	.0	.0	.0	.0	.0	.0	.0	6.8	11.6
Total softwoods	817.1	1,418.5	2,468.8	77.9	2,175.2	188.9	944.8	404.3	14,758.3
Sugar maple	69.4	112.7	223.7	1.1	313.4	14.9	29.4	8.9	1,309.0
Red maple	149.7	172.8	229.0	29.2	239.7	62.8	134.7	85.1	1,795.0
Yellow birch	147.2	57.5	141.6	.1	207.8	7.3	25.7	6.6	920.8
Paper birch	132.2	88.2	94.9	6.8	194.5	32.0	85.0	30.1	1,130.8
Gray birch	6.1	8.9	2.6	1.5	12.2	1.7	2.6	.9	62.7
Beech	90.0	85.6	92.2	1.9	84.3	11.4	20.6	6.1	629.7
White ash	26.8	32.7	23.4	5.0	29.9	13.0	5.3	7.9	244.1
Black ash	.8	16.5	21.7	.0	13.0	.7	8.5	.3	108.9
Aspen	90.6	179.1	140.6	4.8	135.0	42.2	93.0	19.9	1,327.1
White oaks	1.1	1.3	.0	.2	.0	.2	.0	7.6	16.9
Red oaks	50.7	3.9	5.4	17.0	6.9	19.0	9.2	86.7	397.7
Basswood	.0	8.9	5.1	.4	2.0	1.4	.0	.2	25.1
Elm	.7	16.4	.9	.1	4.1	.0	.0	.2	32.0
Other hardwoods	3.0	2.7	1.0	.5	3.2	2.2	.0	4.6	38.0
Total hardwoods	768.3	787.2	982.1	68.6	1,246.0	208.8	414.0	265.1	8,037.8
Total, all species	1,585.4	2,205.7	3,450.9	146.5	3,421.2	397.7	1,358.8	669.4	22,796.1

Table 164.--Net volume of sawtimber trees on timberland by county and forest-type group, Maine, 1982

(In millions of board feet)[a]

County	Forest-type group								All groups
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Androscoggin	452.4	22.0	-	7.5	13.0	7.9	91.7	51.7	646.2
Aroostook	145.6	7,479.9	-	-	-	52.8	2,992.0	486.0	11,156.3
Cumberland	1,116.7	11.0	-	13.8	56.3	.6	128.5	-	1,326.9
Franklin	304.8	1,071.4	-	-	-	-	1,060.0	233.9	2,670.1
Hancock	455.3	1,089.0	-	-	20.1	8.5	211.4	37.4	1,821.7
Kennebec	756.9	38.7	-	10.9	27.9	19.5	215.1	41.5	1,110.5
Knox	106.5	209.9	-	-	52.8	-	106.9	11.4	487.5
Lincoln	369.3	206.8	-	-	102.8	9.6	44.1	4.5	737.1
Oxford	942.2	611.2	-	30.3	40.9	-	1,379.6	91.0	3,095.2
Penobscot	1,247.2	2,007.0	-	-	-	79.9	981.3	276.6	4,592.0
Piscataquis	420.0	5,090.3	-	-	76.6	3.3	2,087.0	111.3	7,788.5
Sagadahoc	260.9	3.4	-	6.9	29.7	1.5	56.4	5.8	364.6
Somerset	560.4	3,719.7	-	-	20.9	24.9	2,261.8	228.5	6,816.2
Waldo	133.5	242.5	-	-	42.7	.8	180.5	28.0	628.0
Washington	327.7	1,577.3	-	-	7.3	32.2	466.6	196.5	2,607.6
York	1,512.0	32.6	9.5	.3	152.2	3.3	100.4	18.7	1,829.0
All counties	9,111.4	23,412.7	9.5	69.7	643.2	244.8	12,363.3	1,822.8	47,677.4

[a]International 1/4-inch rule.

Table 165.--Net volume of sawtimber trees on timberland by county and stand-size class, Maine, 1982

(In millions of board feet)[a]

County	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Androscoggin	491.6	151.8	2.8	-	646.2
Aroostook	9,309.9	1,719.5	126.9	-	11,156.3
Cumberland	1,096.2	213.7	17.0	-	1,326.9
Franklin	1,878.9	773.0	18.2	-	2,670.1
Hancock	1,484.2	310.0	27.5	-	1,821.7
Kennebec	902.0	207.2	1.3	-	1,110.5
Knox	426.0	60.9	.6	-	487.5
Lincoln	629.0	97.8	10.3	-	737.1
Oxford	2,209.3	841.4	44.5	-	3,095.2
Penobscot	3,539.3	1,022.1	30.6	-	4,592.0
Piscataquis	6,504.4	1,100.4	183.7	-	7,788.5
Sagadahoc	325.9	36.1	2.6	-	364.6
Somerset	5,574.5	1,168.0	73.7	-	6,816.2
Waldo	409.4	194.4	24.2	-	628.0
Washington	1,895.9	660.6	51.1	-	2,607.6
York	1,632.4	187.7	8.9	-	1,829.0
All counties	38,308.9	8,744.6	623.9	-	47,677.4

[a]International 1/4-inch rule.

Table 166.--Net volume of sawtimber trees on timberland by species and county, Maine, 1971

(In millions of board feet)[a]

Species	Androscoggin	Aroostook	Cumberland	Franklin	Hancock	Kennebec	Knox	Lincoln
Balsam fir	13.2	2,328.3	5.3	333.2	32.4	16.6	.0	10.6
Tamarack	.0	75.8	.0	21.9	15.4	.0	.0	4.8
White spruce	.0	562.0	.0	107.7	53.5	31.3	12.6	.0
Black spruce	.0	26.7	.0	.0	6.1	.0	.0	11.6
Red spruce	4.6	3,048.3	2.5	293.3	564.7	.0	48.7	30.1
Red pine	.0	.0	5.2	.0	4.3	5.3	.0	.0
White pine	383.3	230.9	667.9	141.0	110.9	212.1	21.3	210.2
Northern white-cedar	.0	607.2	.0	21.9	97.5	5.9	.0	2.2
Hemlock	51.8	258.9	290.0	12.6	161.9	131.3	20.1	82.2
Other softwoods	.0	.0	.0	.0	.0	.0	.0	.0
Total softwoods	452.9	7,138.1	970.9	931.6	1,046.7	402.5	102.7	351.7
Sugar maple	.0	1,018.7	16.1	191.3	21.2	25.7	12.0	.0
Red maple	11.4	453.0	30.7	135.5	95.8	60.4	35.3	22.8
Yellow birch	8.8	365.8	8.5	247.5	33.4	19.5	.0	25.8
Paper birch	24.8	127.5	10.2	112.6	20.7	16.9	17.5	22.7
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0
Beech	.0	484.5	13.1	56.9	23.5	10.3	.0	.0
White ash	11.6	57.0	8.9	42.1	23.9	25.7	3.8	.0
Black ash	.0	79.6	.0	.0	.0	.0	9.4	.0
Aspen	.0	463.4	5.0	135.2	9.5	24.6	.0	5.5
White oaks	.0	.0	4.2	.0	.0	.0	.0	.0
Red oaks	63.5	.0	155.5	19.6	9.4	5.1	36.1	9.1
Basswood	.0	3.2	.0	21.8	3.7	23.8	6.4	.0
Elm	.0	11.7	.0	4.1	.0	52.0	21.2	.0
Other hardwoods	.0	.0	.0	9.8	.0	.0	.0	.0
Total hardwoods	120.1	3,064.4	252.2	976.4	241.1	264.0	141.7	85.9
Total, all species	573.0	10,202.5	1,223.1	1,908.0	1,287.8	666.5	244.4	437.6

[a] International 1/4-inch rule.

Table 166.--continued

(In millions of board feet)[a]

Species	Oxford	Penobscot	Piscataquis	Sagadahoc	Somerset	Waldo	Washington	York	Total
Balsam fir	279.8	380.0	734.1	.0	898.2	46.6	132.7	4.3	5,215.3
Tamarack	.0	13.1	4.6	.0	6.6	14.7	46.4	.0	203.3
White spruce	35.0	60.0	197.6	.0	260.1	12.9	37.9	.0	1,370.6
Black spruce	.0	12.3	34.8	.0	8.8	.0	14.5	.0	114.8
Red spruce	299.9	927.8	1,824.2	41.4	1,052.0	65.1	886.6	52.6	9,141.8
Red pine	23.5	3.3	8.4	.0	4.2	5.7	41.8	.0	101.7
White pine	598.3	455.4	619.4	173.4	176.6	123.7	255.8	776.5	5,156.7
Northern white-cedar	22.2	193.4	413.8	.0	248.2	31.1	116.9	.0	1,760.3
Hemlock	257.6	562.3	174.9	32.3	168.5	31.2	235.8	162.9	2,634.3
Other softwoods	.0	.0	.0	.0	4.6	.0	.0	.0	4.6
Total softwoods	1,516.3	2,607.6	4,011.8	247.1	2,827.8	331.0	1,768.4	996.3	25,703.4
Sugar maple	291.4	299.0	868.6	.0	859.7	20.8	48.7	13.9	3,687.1
Red maple	170.0	439.3	248.6	6.4	224.1[b]	41.4	286.3	59.9	2,320.9
Yellow birch	292.4	138.6	413.5	.0	452.9	21.8	35.5	8.9	2,072.9
Paper birch	90.6	81.6	144.0	5.0	160.8	6.8	78.7	4.2	924.6
Gray birch	.0	.0	.0	.0	.0	.0	.0	.0	.0
Beech	74.5	115.0	224.2	.0	165.3	5.0	11.2	20.4	1,203.9
White ash	7.2	35.6	56.2	.0	15.0	.0	38.0	.0	325.0
Black ash	12.6	61.8	31.8	.0	12.5	.0	24.7	.0	232.4
Aspen	33.4	45.1	37.8	.0	94.8	5.0	59.6	.0	918.9
White oaks	3.4	.0	.0	.0	.0	.0	.0	10.4	18.0
Red oaks	142.5	18.9	28.3	36.4	.0	51.6	16.0	64.1	656.1
Basswood	6.5	22.3	33.3	.0	45.7	.0	.0	5.0	171.7
Elm	.0	42.9	60.3	.0	19.3	55.5	.0	9.8	276.8
Other hardwoods	.0	2.5	2.9	.0	11.3	2.4	.0	2.8	31.7
Total hardwoods	1,124.5	1,302.6	2,149.5	47.8	2,061.4	210.3	598.7	199.4	12,840.0
Total, all species	2,640.8	3,910.2	6,161.3	294.9	4,889.2	541.3	2,367.1	1,195.7	38,543.4

[a]International 1/4-inch rule.
[b]Includes 5.0 million board feet of silver maple.

Table 167.--Net volume of sawtimber trees on timberland by species and county, Maine, 1982

(In millions of board feet)[a]

Species	Androscoggin	Aroostook	Cumberland	Franklin	Hancock	Kennebec	Knox	Lincoln
Balsam fir	37.2	2,174.0	7.7	571.5	54.0	20.2	14.1	1.4
Tamarack	3.4	127.5	.0	1.2	20.3	15.2	5.2	2.1
White spruce	.0	567.6	.0	37.5	16.3	.5	9.9	1.8
Black spruce	.0	208.0	.8	55.5	17.6	.0	.0	.0
Red spruce	9.8	2,880.0	20.6	518.0	780.2	16.6	186.3	181.8
Red pine	3.2	.0	31.0	4.8	27.2	.0	.0	4.9
White pine	358.5	228.8	694.4	200.9	262.9	519.9	65.5	289.9
Northern white-cedar	.0	1,521.1	.0	50.7	125.3	8.5	2.0	.0
Hemlock	92.5	274.7	319.6	100.0	240.1	205.9	42.9	84.6
Other softwoods	.0	.0	11.2	.0	.0	.0	.0	.0
Total softwoods	504.6	7,981.7	1,085.3	1,540.1	1,543.9	786.8	325.9	566.5
Sugar maple	7.8	1,213.8	5.9	137.5	25.0	10.0	1.4	6.0
Red maple	52.3	285.8	48.2	224.4	98.1	122.6	68.2	44.3
Yellow birch	2.1	397.9	5.3	305.0	14.7	12.0	.0	3.4
Paper birch	3.7	79.3	22.8	208.3	28.4	22.2	10.9	14.2
Gray birch	3.4	.0	.9	9.5	2.6	2.7	.0	.6
Beech	4.3	478.5	29.5	19.4	5.9	16.9	2.0	1.1
White ash	.0	27.5	8.1	68.9	26.2	13.9	15.2	1.4
Black ash	.0	70.6	.0	2.6	7.8	.0	.0	.0
Aspen	27.7	605.9	5.4	127.5	57.2	50.6	1.7	3.8
White oaks	.0	.0	6.8	.0	.0	.0	.0	.0
Red oaks	40.3	3.1	105.3	10.7	11.9	49.0	62.2	93.4
Basswood	.0	.0	.0	10.1	.0	8.8	.0	.0
Elm	.0	9.1	.0	6.1	.0	2.1	.0	.0
Other hardwoods	.0	3.1	3.4	.0	.0	12.9	.0	2.4
Total hardwoods	141.6	3,174.6	241.6	1,130.0	277.8	323.7	161.6	170.6
Total, all species	646.2	11,156.3	1,326.9	2,670.1	1,821.7	1,110.5	487.5	737.1

[a]International 1/4-inch rule.

Table 167.--continued

(In millions of board feet)[a]

Species	Oxford	Penobscot	Piscataquis	Sagadahoc	Somerset	Waldo	Washington	York	Total
Balsam fir	457.0	186.5	904.6	4.6	1,264.6	28.8	127.1	8.5	5,861.8
Tamarack	3.1	26.7	19.9	2.5	11.5	27.4	27.9	3.4	297.3
White spruce	46.7	69.9	179.5	.0	122.0	29.0	53.7	.0	1,134.4
Black spruce	.0	19.8	202.7	.0	52.5	.8	21.2	.0	578.9
Red spruce	380.4	1,124.1	2,757.3	19.6	1,718.2	77.4	972.3	31.6	11,674.2
Red pine	46.3	72.5	.0	.0	23.3	.0	15.0	7.8	236.0
White pine	714.5	546.4	685.2	208.2	402.8	124.8	231.9	985.6	6,520.2
Northern white-cedar	3.0	348.2	666.4	6.3	518.5	28.6	175.7	.0	3,454.3
Hemlock	247.9	751.1	176.8	35.6	282.9	81.7	331.3	420.4	3,688.0
Other softwoods	.0	.0	.0	.0	.0	.0	.0	21.3	32.5
Total softwoods	1,898.9	3,145.2	5,592.4	276.8	4,396.3	398.5	1,956.1	1,478.6	33,477.6
Sugar maple	152.7	284.1	688.0	4.9	830.0	13.0	66.9	12.6	3,459.6
Red maple	189.7	299.0	432.9	26.9	376.6	66.7	186.4	68.8	2,590.9
Yellow birch	395.6	94.8	373.0	.0	532.0	10.4	37.4	2.2	2,185.8
Paper birch	117.8	86.6	121.9	2.5	210.1	17.8	81.5	21.8	1,049.8
Gray birch	1.4	.0	.0	.0	5.1	.0	.0	.0	26.2
Beech	122.1	121.9	180.6	3.0	170.1	9.3	41.8	8.6	1,215.0
White ash	68.4	65.7	35.9	.0	35.7	20.9	6.1	15.4	409.3
Black ash	.0	33.9	31.4	.0	13.4	.0	9.8	.0	169.5
Aspen	54.3	336.6	293.0	.8	216.8	50.4	213.2	15.5	2,060.4
White oaks	.0	.0	.0	.0	.0	.0	.0	16.4	23.2
Red oaks	94.3	11.6	23.8	49.7	14.7	38.2	8.4	178.9	795.5
Basswood	.0	31.5	12.1	.0	4.9	2.8	.0	.9	71.1
Elm	.0	76.9	.0	.0	8.3	.0	.0	.0	102.5
Other hardwoods	.0	4.2	3.5	.0	2.2	.0	.0	9.3	41.0
Total hardwoods	1,196.3	1,446.8	2,196.1	87.8	2,419.9	229.5	651.5	350.4	14,199.8
Total, all species	3,095.2	4,592.0	7,788.5	364.6	6,816.2	628.0	2,607.6	1,829.0	47,677.4

[a]International 1/4-inch rule.

Table 168.--Net volume suitable for pulpwood on timberland by species and county, Maine, 1982

(In thousands of cords)[a]

Species	Androscoggin	Aroostook	Cumberland	Franklin	Hancock	Kennebec	Knox	Lincoln
Balsam fir	227	16,970	110	4,274	1,194	277	216	121
Tamarack	13	530	0	4	98	57	21	19
White spruce	1	3,143	0	219	102	14	31	13
Black spruce	0	2,713	4	281	192	0	0	0
Red spruce	50	13,242	104	2,728	3,848	67	925	744
Red pine	7	0	108	12	83	3	0	15
White pine	1,084	728	2,772	752	893	1,834	232	1,129
Northern white-cedar	0	10,014	0	235	923	144	14	6
Hemlock	377	1,172	1,162	465	1,120	774	195	360
Other softwoods	0	4	59	2	0	0	0	0
Total softwoods	1,759	48,516	4,319	8,972	8,453	3,170	1,634	2,407
Hard maples	38	5,699	50	1,133	190	170	16	61
Soft maples	554	2,716	802	2,183	1,429	1,146	603	471
Yellow birch	14	2,297	78	1,734	369	112	27	60
Paper birch	120	1,764	267	2,306	884	364	202	135
Gray birch	41	4	81	141	55	182	4	17
Beech	50	2,980	310	267	168	152	16	57
White ash	48	188	94	536	141	179	62	23
Black ash	2	569	3	56	75	6	1	0
Aspen	495	4,686	142	985	743	687	108	51
White oaks	1	0	76	0	0	3	0	1
Red oaks	346	13	799	31	72	456	268	541
Basswood	0	1	2	44	0	37	0	6
Elm	2	73	6	45	0	33	0	0
Other comm. hardwoods	1	10	43	21	11	144	6	87
Noncomm. hardwoods	7	140	20	153	23	36	18	28
Total hardwoods	1,719	21,140	2,773	9,635	4,160	3,707	1,331	1,538
Total, all species	3,478	69,656	7,092	18,607	12,613	6,877	2,965	3,945

[a]One cord is equivalent to 85 cubic feet of solid wood.

Table 168.--continued

(In thousands of cords)

Species	Oxford	Penobscot	Piscataquis	Sagadahoc	Somerset	Waldo	Washington	York	Total
Balsam fir	2,978	2,960	8,252	52	10,037	495	2,567	78	50,808
Tamarack	15	246	159	16	51	105	161	11	1,506
White spruce	302	426	1,052	0	837	131	594	7	6,872
Black spruce	32	169	1,003	0	730	10	359	16	5,509
Red spruce	2,413	5,585	13,697	58	9,281	346	5,425	125	58,638
Red pine	139	245	0	0	176	0	59	34	881
White pine	2,821	2,038	1,913	654	1,386	517	776	3,461	22,990
Northern white-cedar	75	3,588	3,589	48	2,933	289	1,542	0	23,400
Hemlock	1,200	3,982	923	117	1,271	427	1,998	1,592	17,135
Other softwoods	7	0	0	0	0	0	0	92	164
Total softwoods	9,982	19,239	30,588	945	26,702	2,320	13,481	5,416	187,903
Hard maples	960	1,626	2,882	19	4,160	203	435	122	17,764
Soft maples	2,089	2,719	3,076	381	3,253	858	2,160	1,245	25,685
Yellow birch	1,990	903	1,916	0	2,822	104	418	96	12,940
Paper birch	1,632	1,276	1,195	75	2,435	380	1,177	359	14,571
Gray birch	89	212	45	28	179	60	47	20	1,205
Beech	1,309	1,490	1,376	21	1,322	169	354	97	10,138
White ash	320	465	279	54	362	147	83	97	3,078
Black ash	9	338	277	0	178	12	188	7	1,721
Aspen	1,092	2,543	1,700	51	1,662	497	1,335	254	17,031
White oaks	23	19	0	2	0	8	0	120	253
Red oaks	625	75	71	186	83	225	117	1,071	4,979
Basswood	0	117	61	3	26	26	0	3	326
Elm	8	249	11	1	49	3	0	3	483
Other comm. hardwoods	58	65	17	9	87	36	0	71	666
Noncomm. hardwoods	207	93	152	9	215	28	23	3	1,155
Total hardwoods	10,411	12,190	13,058	839	16,833	2,756	6,337	3,568	111,995
Total, all species	20,393	31,429	43,646	1,784	43,535	5,076	19,818	8,984	299,898

Table 169.--Sampling errors for various county and geographic unit estimates, Maine, 1971 and 1982

(In percent)

County and geographic unit	Area			Number of growing-stock trees	Volume					
	Forest land	Timberland			Green weight	Growing-stock trees		Sawtimber trees		Pulpwood
	1982	1971	1982	1982	1982	1971	1982	1971	1982	1982
Aroostook County	.8	.9	.9	2.7	1.9	2.2	2.7	3.3	4.2	2.3
Capital Region:										
Kennebec County	2.2	2.3	2.0			8.0	4.5	12.1	7.5	5.2
Knox County	3.5	3.1	3.2			15.7	7.8	25.9	10.4	8.9
Lincoln County	3.4	3.4	2.9			13.7	7.3	18.6	10.2	8.9
Waldo County	1.9	3.2	2.1			8.2	5.1	12.0	8.4	5.9
Total	1.3	1.5	1.2	3.2	2.8	5.2	2.9	7.7	4.5	
Casco Bay:										
Androscoggin County	3.4	5.1	3.0			10.6	6.5	6.1	10.1	7.8
Cumberland County	2.6	3.8	2.3			7.8	4.7	11.5	6.7	5.6
Sagadahoc County	7.8	3.2	4.7			13.9	9.3	17.3	12.6	12.3
York County	2.1	2.7	1.8			8.4	4.9	10.9	6.9	5.7
Total	1.5	1.9	1.3	3.2	2.7	4.8	2.9	6.1	4.2	
Hancock County	2.1	3.4	2.5	6.1	5.1	5.1	4.4	12.3	7.9	6.6
Penobscot County	1.5	1.4	1.1	3.9	3.2	3.2	3.2	5.2	4.4	3.8
Piscataquis County	.8	.7	.6	4.3	3.2	2.8	3.0	3.8	4.2	3.8
Somerset County	.7	1.3	.5	3.7	2.8	3.3	2.6	4.5	4.0	3.2
Washington County	1.7	1.1	.9	5.0	3.6	3.9	4.2	7.0	6.4	4.6
Western Maine:										
Franklin County	.4	1.8	1.1			4.8	3.5	8.1	6.4	4.4
Oxford County	1.5	2.2	1.2			4.3	3.7	8.0	6.3	4.5
Total	.8	1.4	.8	3.3	2.6	3.2	2.6	5.8	4.5	
All counties	.4	.4	.3	1.3	1.0	1.1	1.1	1.7	1.6	1.2

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Appendix

Definition of terms

Acceptable tree. (a) Live sawtimber trees that do not qualify as preferred trees but are not cull trees. (b) Live poletimber trees that prospectively will not qualify as preferred trees, but are not now or prospectively cull trees.

Accretion. The estimated net growth on growing-stock trees that were measured during the previous inventory, divided by the number of growing seasons between surveys. It does not include the growth on trees that were cut during the period, nor those trees that died.

Basal area class. A classification of forest land in terms of basal area (cross sectional area of a tree stem at breast height in square feet per acre) of all live trees of all sizes.

Board foot. A unit of lumber measurement 1 foot long, 1 foot wide, and 1 inch thick, or its equivalent.

Board foot stand-volume class. A classification of forest land in terms of net board foot volume of sawtimber trees per acre.

Cabin log. A relatively slender roundwood product that is cut to standard sizes; meets specifications of strength, straightness, and soundness; and is finished for use in constructing cabins, barns, and other buildings.

Coarse residues. Manufacturing residues suitable for chipping, such as slabs, edgings, and veneer cores.

Commercial species. Tree species presently or prospectively suitable for industrial wood products. Excludes species of typically small size, poor form, or inferior quality, such as hawthorn and sumac.

Cord. (See Standard cord.)

County and municipal lands. Lands owned by counties and local public agencies or municipalities or leased to them for 50 years or more.

Cubic foot stand-volume class. A classification of forest land in terms of net cubic-foot volume of all live trees per acre.

Cull tree. A rough tree or a rotten tree.

Cull increment. The net volume of growing-stock trees on the previous inventory that became rough or rotten trees in the current inventory, divided by the number of growing seasons between surveys.

Diameter at breast height (dbh). The diameter outside bark of a standing tree measured at 4-1/2 feet above the ground.

Farmer-owned lands. Lands owned by farm operators, whether part of the farmstead or not. Excludes land leased by farm operators from nonfarm owners.

Federal lands. Lands (other than National Forests) administered by Federal agencies.

Fine residues. Manufacturing residues not suitable for chipping, such as sawdust and shavings.

Forest industry lands. Lands owned by companies or individuals that operate primary wood-using plants.

Forest land. Land that is at least 10 percent stocked with trees of any size, or that formerly had such tree cover and is not currently developed for nonforest use. The minimum area for classification of forest land is 1 acre.

Forest type. A classification of forest land by species that form a plurality of live tree basal area stocking.

Forest-type group. A combination of forest types that share closely associated species or site requirements. The many forest types in Maine were combined into the following major forest-type groups (the descriptions apply to forests in Maine):

a. White/red pine--forests in which white pine, hemlock, or red pine, singly or in combination, make up a plurality of the stocking; common associates include red maple, red spruce, balsam fir, northern red oak, paper birch, and aspen.

b. Spruce/fir--forests in which red spruce, northern white-cedar, balsam fir, white spruce, black spruce, or tamarack, singly or

in combination, make up a plurality of the stocking; common associates include paper birch, red maple, aspen, white pine, hemlock, yellow birch, and sugar maple.

c. Loblolly/shortleaf pine--forests in which pitch pine makes up a plurality of the stocking; gray birch is an associate of this rare type group.

d. Oak/pine--forests in which northern red oak or white ash, singly or in combination, make up a plurality of the stocking but where white pine contributes 25 to 50 percent of the stocking; beech and red spruce are associates.

e. Oak/hickory--forests in which upland oaks, red maple (when associated with central hardwoods), or hawthorn, singly or in combination, make up a plurality of the stocking and in which white pine makes up less than 75 percent of the stocking; common associates include white pine, paper birch, red spruce, beech, hemlock, and balsam fir.

f. Elm/ash/red maple--forests in which black ash, elm, red maple (when growing on wet sites), willow, or green ash, singly or in combination, make up a plurality of the stocking; common associates include balsam fir, northern white-cedar, aspen, and white ash.

g. Northern hardwoods--forests in which sugar maple, beech, yellow birch, red maple (when associated with northern hardwoods), pin cherry, or black cherry, singly or in combination, make up a plurality of the stocking; common associates include balsam fir, red spruce, paper birch, hemlock, white ash, aspen, and white pine.

h. Aspen/birch--forests in which aspen, paper birch, or gray birch, singly or in combination, make up a plurality of the stocking; common associates include balsam fir, red maple, red spruce, white spruce, and white pine.

i. Indeterminate--forests with such a mixture of species that no forest type predominates (shown for 1971 data only).

Fuelwood. Round, split, or chipped woody material (with or without bark) that is converted to household, commercial, or industrial energy.

Geographic unit. A county or a group of counties within a state that is large enough to provide an adequate sample that will yield statistically reliable estimates of timberland area, volume, and components of change.

Green ton. A unit of measure of green weight equivalent to 2,000 pounds or 907.1848 kilograms.

Green ton stand-volume class. A classification of forest land in terms of net green weight of the aboveground components of all live trees per unit area. It is usually expressed in green tons per acre.

Green weight. The weight of wood and bark as it would be if it had been recently cut. It is usually expressed in pounds or tons.

Gross growth. The sum of accretion and ingrowth.

Growing-stock trees. Live trees of commercial species classified as sawtimber, poletimber, saplings, and seedlings; that is, all live trees of commercial species except rough and rotten trees.

Growing-stock volume. Net volume, in cubic feet, of growing-stock trees 5.0 inches dbh and larger, from a 1-foot stump to a minimum 4.0-inch top diameter outside bark of the central stem, or to the point where the central stem breaks into limbs. Net volume equals gross volume, less deduction for cull.

Hardwoods. Dicotyledonous trees, usually broad-leaved and deciduous.

Indian lands. (a) Lands held in trust by the United States or States for Indian tribes or individual Indians. (b) Lands owned in fee by Indian tribes whether subject to Federal or State restrictions against alienation or not.

Industrial products. All roundwood products except fuelwood.

Ingrowth. The estimated net volume of growing-stock trees that became 5.0 inches dbh or larger during the period between inventories, divided by the number of growing seasons between surveys.

International 1/4-inch rule. A log rule, or formula, for estimating the board-foot volume of logs. The mathematical formula is:

$$(0.22D^2 - 0.71D)(0.904762)$$

for 4-foot sections, where D = diameter inside bark at the small end of the section. This rule is used as the USDA Forest Service Standard Log rule in the eastern United States.

Land area. (a) Bureau of Census: The area of dry land and land temporarily or partly covered by water, such as marshes, swamps, and river flood plains; streams, sloughs, estuaries, and canals less than 1/8 statute mile wide; and lakes, reservoirs, and ponds less than 40 acres in area. (b) Forest Inventory and Analysis: same as (a) except that the minimum width of streams, etc., is 120 feet, and the minimum size of lakes, etc., is 1 acre.

Logging residues. The unused portions of growing-stock trees harvested or killed in the process of logging.

Manufacturing plant residues. Wood materials that are generated when round timber (roundwood)

is converted into wood products. This includes slabs, edgings, trimmings, bark, miscuts, sawdust, shavings, veneer cores and clippings, and pulp screening. If these residues are used, they are referred to as plant byproducts.

Miscellaneous private lands. Privately owned lands other than forest industry and farmer-owned lands.

Mortality. The estimated net volume of growing-stock trees at the previous inventory that died from natural causes before the current inventory, divided by the number of growing seasons between surveys.

National Forest lands. Federal lands legally designated as National Forests or purchase units and other lands administered as part of the National Forest System by the USDA Forest Service.

Net change. The difference between the current and previous inventory estimates of growing-stock volume, divided by the number of growing seasons between surveys. Components of net change are ingrowth plus accretion minus mortality minus cull increment minus removals.

Net green weight. The green weight of woody material less the weight of all unsound (rotten) material.

Net growth. The change, resulting from natural causes, in growing-stock volume during the period between surveys, divided by the number of growing seasons. Components of net growth are ingrowth plus accretion minus mortality minus cull increment.

Noncommercial forest land. Productive-reserved, urban, and unproductive forest land.

Noncommercial species. Tree species of typically small size, poor form, or inferior quality that normally do not develop into trees suitable for industrial wood products.

Nonforest land. Land that has never supported forests, or land formerly forested but now in nonforest use such as cropland, pasture, residential areas, and highways.

Nonsalvable dead tree. A dead tree with most or all of its bark missing that is at least 5.0 inches in diameter at breast height and is at least 10 feet in height.

Nonstocked area. A stand-size class of forest land that is stocked with less than 10 percent of minimum full stocking with all live trees.

Ownership class. A classification of forest land based upon ownership and nature of business or control of decisionmaking for the land. It encompasses all types of legal entities having ownership interest in the land, whether public or private.

Piling (piles). Relatively slender, structural roundwood products that are cut to the maximum length possible (within top circumference and other specifications of strength, straightness, and soundness) that when nearly buried in the ground provide vertical or lateral support for buildings, foundations, bridges, docks, and other structures.

Plant byproducts. Wood products, such as pulp chips, recycled from manufacturing plant residues.

Pole. A roundwood product that is cut to standard size and meets specifications of strength, straightness, and soundness and is driven into the ground, usually to provide vertical or lateral support for electric power and telephone transmission lines.

Poletimber stand. A stand-size class of forest land that is stocked with at least 10 percent of minimum full stocking with all live trees with half or more of such stocking in poletimber or sawtimber trees or both, and in which the stocking of poletimber exceeds that of sawtimber.

Poletimber trees. Live trees of commerical species meeting regional specifications of soundness and form and at least 5.0 inches in dbh, but smaller than sawtimber trees.

Post. A short roundwood product that is used in an upright position to support fences and other similar structures.

Potential site productivity class. A classification of forest land by its inherent capacity to grow crops of industrial wood. Classifications are based on the mean annual growth of growing-stock trees attainable in fully stocked natural stands at the culmination of mean annual increment. While not exact, the relationships between the classes and productivity in terms of cubic feet per acre are: poor = 20 to 50, fair = 50 to 85, good = 85 to 120, and very good = greater than 120.

Preferred tree. A high quality tree, from a lumber viewpoint, that would be favored in cultural operations. General characteristics include grade 1 butt log (if sawtimber size), good form, good vigor, and freedom from serious damage.

Productive-reserved forest land. Forest land sufficiently productive to qualify as timberland, but withdrawn from timber utilization through statute, administrative designation, or exclusive use for Christmas tree production.

Primary manufacturing plant. A plant that converts round timber into wood products such as woodpulp, lumber, veneer, cooperage, and dimension products.

Pulpwood. Roundwood converted into 4-or 5-foot lengths or chips, and chipped plant byproducts that are prepared for manufacture into woodpulp.

Removals. The net growing-stock volume harvestd or killed in logging, cultural operations--such as timber stand improvement--or land clearing, and also the net growing-stock volume neither harvested nor killed but growing on land which was reclassified from timberland to noncommercial forest land during the period between surveys. This volume is divided by the number of growing seasons.

Rotten tree. A live tree of commercial species that does not contain at least one 12-foot sawlog or two noncontiguous sawlogs, each 8 feet or longer, now or prospectively, and does not meet regional specifications for freedom from defect primarily because of rot; that is, more than 50 percent of the cull volume in the tree is rotten.

Rough tree. (a) The same as a rotten tree, except that a rough tree does not meet regional specifications for freedom from defect primarily because of roughness or poor form; also (b) a live tree of noncommercial species.

Roundwood products. Logs, bolts, total tree chips, or other round timber generated by harvested trees for industrial or consumer uses.

Salvable dead tree. A tree at least 5.0 inches in diameter at breast height that has recently died and still has intact bark. The tree may be standing, fallen, windthrown, knocked down, or broken off.

Sampling error. A measure of the reliability of an estimate, expressed as a percentage of the estimate. The sampling errors given in this report correspond to one standard deviation, and are calculated as the square root of the variance, divided by the estimate, and multiplied by 100.

Saplings. Live trees 1.0 through 4.9 inches dbh.

Sapling-seedling stand. A stand-size class of forest land that is stocked with at least 10 percent of minimum full stocking with all live trees with half or more of such stocking in saplings or seedlings or both.

Sawlog. A log meeting regional standards of diameter, length, and freedom from defect, including a minimum 8-foot length and a minimum diameter inside bark of 6 inches for softwoods and 8 inches for hardwoods. (See specifications under Log Grade Classification).

Sawlog portion. That part of the bole of a sawtimber tree between the stump and the sawlog top; that is, the merchantable height.

Sawlog top. The point on the bole of a sawtimber tree above which a sawlog cannot be produced. The minimum sawlog top is 7.0 inches diameter outside bark (dob) for softwoods and 9.0 inches dob for hardwoods.

Sawtimber stand. A stand-size class of forest land that is stocked with at least 10 percent of minimum full stocking with all live trees with half or more of such stocking in poletimber or sawtimber trees or both, and in which the stocking of sawtimber is at least equal to that of poletimber.

Sawtimber trees. Live trees of commercial species at least 9.0 inches dbh for softwoods or 11.0 inches for hardwoods, containing at least one 12-foot sawlog or two noncontiguous 8-foot sawlogs, and meeting regional specifications for freedom from defect.

Sawtimber volume. Net volume in board feet, by International 1/4-inch rule, of sawlogs in sawtimber trees. Net volume equals gross volume less deductions for rot, sweep, and other defects that affect use for lumber.

Seedlings. Live trees less than 1.0 inch dbh and at least 1 foot in height.

Softwoods. Coniferous trees, usually evergreen and having needles or scalelike leaves.

Stand-size class. A classification of forest land based on the size class (that is, seedlings, saplings, poletimber, or sawtimber) of all live trees in the area.

Standard cord. A unit of measure for stacked bolts of wood, encompassing 128 cubic feet of wood, bark, and air space. Fuelwood cord estimates can be derived from cubic-foot estimates of growing stock by applying an average factor of 80 cubic feet of solid wood per cord. For pulpwood, a conversion of 85 cubic feet of solid wood per cord is used because pulpwood is more uniform.

Standard-lumber log grade. A classification of the quality of sawtimber volume based on standard sawlog grades for hardwoods, white pine, and southern pine. (Note: In Maine, red pine was graded using the southern pine guidelines. All specifications are shown under Log Grade Classification).

State lands. Lands owned by the State or leased to the State for 50 years or more.

Stocking. The degree of occupancy of land by trees, measured by basal area and/or number of trees in a stand compared to the basal area and/or number of trees required to fully use the growth potential of the land (or the stocking standard). In the eastern United States this standard is 75 square feet of basal area per acre for trees 5.0 inches dbh and larger, or its equivalent in numbers of trees per acre for seedlings and saplings.

Two categories of stocking are used in this report: all live trees and growing-stock trees. The relationships between the classes

and the percentage of the stocking standard are: nonstocked = 0 to 15, poorly stocked = 16 to 59, moderately stocked= 60 to 99, fully stocked = 100 to 129, and overstocked = 130 to 160.

Stump. The main stem of a tree from ground level to 1 foot above ground level, including the wood and bark.

Timberland. Forest land producing or capable of producing crops of industrial wood (more than 20 cubic feet per acre per year) and not withdrawn from timber utilization. Formerly known as commercial forest land.

Timber products. Roundwood (round timber) products and manufacturing plant byproducts harvested from growing-stock trees on timberland; from other sources, such as cull trees, salvable dead trees, limbs, tops and saplings; and from trees on noncommercial forest and nonforest lands.

Timber removals. The growing-stock or sawtimber volumes of trees removed from the inventory for roundwood products, plus logging residues, volume destroyed during land clearing, and volume of standing trees on land that was reclassified from timberland to noncommercial forest land. (See Table 37).

Top. The wood and bark of a tree above the merchantable height (or above the point on the stem 4.0 inches in diameter outside bark). It generally includes the uppermost stem, branches, and twigs of the tree, but not the foliage.

Tree class. A classification of the quality or condition of trees for sawlog production. Tree class for sawtimber trees is based on their present condition. Tree class for poletimber trees is a prospective determination--a forecast of their potential quality when they reach sawtimber size (11.0 inches dbh for hardwoods, 9.0 inches dbh for softwoods).

Trees. Woody plants that have well-developed stems and are usually more than 12 feet in height at maturity.

Turnery log or bolt. A roundwood product from which blanks are sawn and turned that usually meets certain minimum standards of diameter, length, and defect.

Unproductive forest land. Forest land that is incapable of producing 20 cubic feet per acre per year of industrial wood under natural conditions, because of adverse site conditions.

Unused manufacturing residues. Plant residues that are dumped or destroyed and not recovered or plant byproducts.

Upper-stem portion. That part of the main stem or fork of a sawtimber tree above the sawlog top to a diameter of 4.0 inches outside bark or to the point where the main stem or fork breaks into limbs.

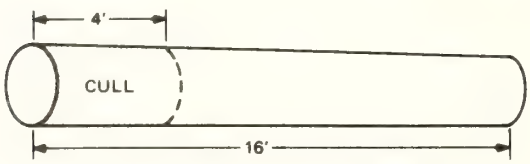
Urban forest land. Noncommercial forest land within urban areas that is completely surrounded by urban development (not parks), whether commercial, industrial, or residential.

Veneer log or bolt. A roundwood product from which veneer is sliced or sawn that usually meets certain minimum standards of diameter, length, and defect.

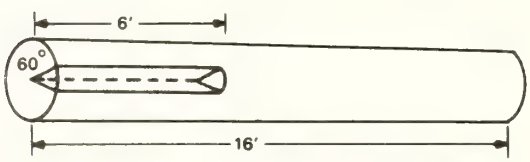
Volume suitable for pulpwood. The sound volume (only rotten cull excluded) of growing-stock and rough trees.

Methods of determining scaling deduction.

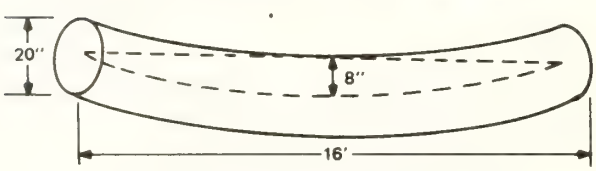
(Examples based on a 16-foot log with 20-inch scaling diameter)



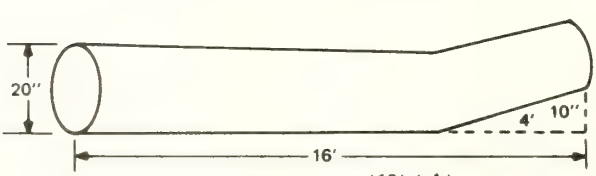
Defect section (rule 1): Percent deduction = $\frac{4}{16}$ = 25%



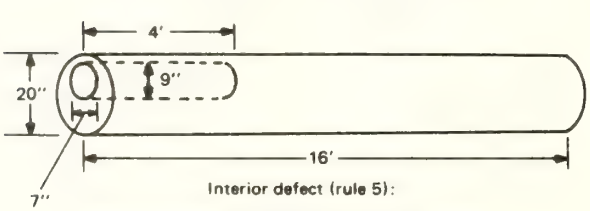
Defect section (rule 2): Percent deduction = $\left(\frac{6}{16}\right)\left(\frac{60}{360}\right)$ = 6-1/4%



Sweep (rule 3): Percent deduction = $\frac{8 \cdot 2}{20}$ = 30%



Crook (rule 4): Percent deduction = $\left(\frac{10}{20}\right)\left(\frac{4}{16}\right)$ = 12-1/2%



Interior defect (rule 5):

Percent deduction = $\frac{(8)\,(10)}{(20-1)^2} \times \frac{4}{16}$ = 5-5/9%

In practice each elipse axis can be divided by (20–1)

Thus $\frac{8}{19}$ = .4, $\frac{10}{19}$ .5, and (.4) (.5) $\left(\frac{4}{16}\right)$ = 5%

From: Grosenbaugh, L.R. 1952. Shortcuts for cruisers and scalers. U.S. Dep, Agric. For. Serv. South. For Exp. Stn. Occas. Pap. 126.

STANDARD GRADES FOR HARDWOOD FACTORY LUMBER LOGS

Grading Factors		Log grades							
		F1			F2				F3
Position in tree		Butts only	Butts & uppers		Butts & Uppers				Butts & uppers
Scaling diameter, inches		13-15[a]	16-19	20+	11+[b]	12+			8+
Length without trim, feet		10+			10+	8-9	10-11	12+	8+
Required clear cuttings[c] of each of 3 best faces[d]	Min. length, feet	7	5	3	3	3	3	3	2
	Max. number	2	2	2	2	2	2	3	No limit
	Min. proportion of log length required in clear cutting	5/6	5/6	5/6	2/3	3/4	2/3	2/3	1/2
Maximum sweep & crook allowance	For logs with less than 1/4 of end in sound defects	15%			30%				50%
	For logs with more than 1/4 of end in sound defects	10%			20%				35%
Maximum scaling	deduction	40%[e]			50%[f]				50%

End defects although not visible in standing trees, are important in grading cut logs. Instructions for dealing with this factor are contained in Forest Prod. Lab. Rpt. D 1737.

[a]Ash and basswood butts can be 12 inches if they otherwise meet requirements for small #1's.
[b]Ten-inch logs of all species can be #2 if they otherwise meet requirements for small #1's.
[c]A clear cutting is the portion of a face, extending the width of the face, that is free of defects.
[d]A face is 1/4 of the surface of the log as divided lengthwise.
[e]Otherwise #1 logs with 41-60% deductions can be #2.
[f]Otherwise #2 logs with 51-60% deductions can be #3.

From: Vaughan, C. L., A. C. Wollin, K. A. McDonald, and E. H. Bulgrin. 1966. Hardwood log grades for standard lumber. USDA For. Serv. Res. Pap. FPL-63.

STANDARD SPECIFICATIONS FOR HARDWOOD CONSTRUCTION LOGS.[a]

Position in tree		Butt & upper
Min. diameter, small end		8 inches +
Min. length, without trim		8 feet
Clear cuttings		No requirements.
Sweep allowance, absolute		1/4 diameter small end for each 8 feet of length.
Sound surface defects	Single knots	Any number, if no one knot has an average diameter above the callus in excess of 1/3 of log diameter at point of occurrence.
	Whorled knots	Any number if sum of knot diameters above the callus does not exceed 1/3 of log diameter at point of occurrence.
	Holes	Any number provided none has a diameter over 1/3 of log diameter at point of occurrence, and none extends over 3 inches into included timber.[b]
Unsound surface defects		Same requirements as for sound defects if they extend into included timber.[b] No limit if they do not.
End defects	Sound	No requirements.
	Unsound	None allowed; log must be sound internally, but will admit 1 shake not to exceed 1/4 the scaling diameter and a longitudinal split not extending over 5 inches into the contained timber.

[a]These specifications are minimum for the class. If, from a group of logs, factory logs are selected first, thus leaving only non-factory logs from which to select construction logs, then the quality range of the construction logs so selected is limited, and the class may be considered a grade. If selection for construction logs is given first priority, then it may be necessary to subdivide the class into grades.
[b]Included timber is always square, and dimension is judged from small end.

From: Rast, E. D., D. L. Sonderman, and G. L. Gammon. 1973. A guide to hardwood log grading (Revised). USDA For. Serv. Gen. Tech. Rep. NE-1.

EASTERN WHITE PINE SAWLOG GRADE SPECIFICATIONS

GRADING FACTOR	LOG GRADE 1	LOG GRADE 2	LOG GRADE 3	LOG GRADE 4
(1) MINIMUM SCALING DIAMETER (inches)	14[1]	6	6	6
(2) MINIMUM LOG LENGTH (feet)	10[2]	8	8	8
(3) MAXIMUM WEEVIL INJURY (number)	None	None	2 injuries[3]	No limit
(4) MINIMUM FACE REQUIREMENTS	Two full length or four 50% length good faces[4] (In addition, log knots on balance of faces shall not exceed size limitations of grade 2 logs.)	No GOOD FACES REQUIRED. Maximum diameter of log knots on three best faces: SOUND RED KNOTS not to exceed 1/6 scaling diameter and 3 inch maximum. DEAD OR BLACK KNOTS including overgrown knots not to exceed 1/12 scaling diameter and 1½ inch maximum	SOUND RED KNOTS not to exceed 1/3 scaling diameter and 5 inch maximum. DEAD OR BLACK KNOTS including overgrown knots not to exceed 1/6 scaling diameter and 2½ inch maximum.	Includes all logs not qualifying for No. 3 or better and judged to have at least one-third of their gross volume in sound wood suitable for manufacture into standard lumber
(5) MAXIMUM SWEEP OR CROOK ALLOWANCE (percent)	20	30	40	66⅔
(6) MAXIMUM TOTAL SCALING DEDUCTION (percent)	50	50	50	66⅔

After the tentative log grade is established from face examination, the log will be reduced in grade whenever the following defects are evident:

(7) CONKS, PUNK KNOTS, AND PINE BORER DAMAGE ON BARK SURFACE[5]

Degrade one grade if present on one face
Degrade two grades if present on two faces
Degrade three grades if present on three or more faces.

(8) LOG END DEFECTS: RED ROT, RING SHAKE, HEAVY STAIN AND PINE BORER DAMAGE OUTSIDE HEART CENTER OF LOG[5]

Consider log as having a total of 8 quarters (4 on each end) and degrade as indicated below:
Degrade one grade if present in 2 quarters of log ends.
Degrade two grades if present in 3 or 4 quarters of log ends
Degrade three grades if present in 5 or more quarters of log ends.

[1]12 and 13 inch logs with four full length good faces are acceptable
[2]8 foot logs with four full length good faces are acceptable
[3]8 foot No. 3 logs limited to one weevil injury
[4]Minimum 50% length good face must be at least 6 feet
[5]Factors 7 and 8 are not cumulative (total degrade based on more serious of the two). No log to be degraded below grade 4 if net scale is at least one-third gross log scale

From: Ostrander, M. D., and R. L. Brisbin, 1971. Sawlog grades for eastern white pine. USDA For. Serv. Res. Pap. NE-205.

SOUTHERN PINE SAWLOGS

Grade 1. Logs with 3 or 4 clear faces.[1] Code 1.

Grade 2. Logs with 1 or 2 clear faces. Code 2.

Grade 3. Logs with no clear faces. Code 3.

After the tentative log grade is established from above, the log will be degraded one grade for each of the following, except that no log can be degraded below grade 3.

1. *Sweep.* Degrade any tentative 1 or 2 log one grade if sweep amounts to 3 or more inches and equals or exceeds one third (1/3) the diameter inside bark at small end. This is the final grade if there is no evidence of heart rot.

2. *Heart rot.* Degrade any tentative 1 or 2 log one grade if conk, massed hyphae, or other evidence of advanced heart rot is found anywhere in it.

[1] A face is one-fourth of the circumference in width extending full length of the log. Clear faces are those free of: knots measuring more than one-half inch in diameter, overgrown knots of any size, holes more than one-fourth inch in diameter. The faces may be rotated if necessary to obtain the maximum number of clear ones.

From: Schroeder, J. G., R. A. Campbell, and R. C. Rodenbach. 1968. Southern pine sawlogs for yard and structural lumber. USDA For. Serv. Res. Pap. SE-39.

Tree species of Maine (as encountered on field plots)

Scientific Name[a]	Common Name(s)	Occurrence[b]
Softwoods		
Abies balsamea (L.) Mill.	balsam fir	vc
Juniperus virginiana L.	eastern redcedar	vr
Larix laricina (Du Roi) K. Koch	tamarack, eastern larch, hackmatack	c
Picea abies (L.) Karst.	Norway spruce	vr
P. glauca (Moench) Voss	white spruce	c
P. mariana (Mill.) B.S.P.	black spruce	c
P. rubens Sarg.	red spruce	vc
Pinus resinosa Ait.	red or Norway pine	r
P. rigida Mill.	pitch pine	vr
P. strobus L.	eastern white pine	c
Thuja occidentalis L.	northern white-cedar	vc
Tsuga canadensis (L.) Carr.	eastern hemlock	c
Hardwoods		
Acer pensylvanicum L.[c]	striped maple, moosewood	c
A. rubrum L.	red, soft, or swamp maple	vc
A. saccharinum L.	silver or soft maple	vr
A. saccharum Marsh.	sugar, rock, or hard maple	c
A. spicatum Lam.[c]	mountain maple	vr
Ailanthus altissima (Mill.) Swingle[c]	Ailanthus, tree-of-heaven	vr
Betula alleghaniensis Britton	yellow birch	c
B. lenta L.	sweet, black, or cherry birch	vr
B. papyrifera Marsh.	paper, white, or canoe birch	vc
B. populifolia Marsh.	gray birch	c
Carpinus caroliniana Walt.[c]	American hornbeam, blue-beech	vr
Carya spp. Nutt.	hickory	vr
Fagus grandifolia Ehrh.	American beech	c
Fraxinus americana L.	white ash	c
F. nigra Marsh.	black or brown ash	c
F. pennsylvanica Marsh.	green or red ash	r
Juglans cinera L.	butternut	vr
Malus spp. Mill.[c]	apple	r
Nyssa sylvatica Marsh.	blackgum or black tupelo	vr
Ostrya virginiana (Mill.) K. Koch[c]	eastern hophornbeam or ironwood	r
Populus balsamifera L.	balsam poplar	r
P. grandidentata Michx.	bigtooth aspen, poplar, or popple	c
P. tremuloides Michx.	quaking or trembling aspen, popple	c
Prunus pensylvanica L.f.[c]	pin or fire cherry	r
P. serotina Ehrh.	black cherry	r
Quercus alba L.	white oak	r
Q. coccinea Muenchh.	scarlet oak	vr
Q. rubra L.	northern red oak	c
Q. velutina Lam.	black or yellow oak	r
Robinia pseudoacacia L.	black locust	vr
Salix spp. L.[c]	willow	vr
S. nigra Marsh.	black willow	vr
Tilia americana L.	American basswood	r
Ulmus americana L.	American elm	r
U. rubra Muhl.	slippery or red elm	vr

[a]Names according to: Little, Elbert L., Jr. Checklist of United States Trees (native and naturalized). Agric. Handb. 541. Washington, D.C.: U.S. Department of Agriculture, Forest Service; 1979. 375 p.

[b]Occurrence is based on the proportion of the species among all live trees 5.0 inches dbh or larger encountered on forest survey field plots: vr = very rare (<0.05%), r = rare (0.05 to 0.49%), c = common (0.5 to 4.9%), and vc = very common (≥5.0%).

[c]Noncommercial species.

Metric equivalents of units used in this report

1 acre = 4,046.86 square meters or 0.404686 hectares
1,000 acres = 404.686 hectares
1,000,000 acres = 404,686 hectares
1 board foot[a] = 0.00348 cubic meters or 3,480 cubic centimeters
1,000 board feet[a] = 3.48 cubic meters
1,000,000 board feet[a] = 3,480 cubic meters
1 cubic foot = 0.028317 cubic meters
1,000 cubic feet = 28.317 cubic meters
1,000,000 cubic feet = 28,317 cubic meters
1 cord (wood, bark, and airspace) = 3.6246 cubic meters
1 cord (solid wood, pulpwood) = 2.4069 cubic meters
1 cord (solid wood, other than pulpwood) = 2.2654 cubic meters
1,000 cords (pulpwood) = 2,406.9 cubic meters
1,000 cords (other products) = 2,265.4 cubic meters
1 inch = 2.54 centimeters or 0.0254 meters
1 foot = 30.48 centimeters or 0.3048 meters
Breast height = 1.4 meters above ground level
1 mile = 1.609 kilometers
1 square foot = 929.03 square centimeters or 0.0929 square meters
1 square foot per acre basal area = 0.229568 square meters per hectare
1 ton = 907.1848 kilograms
1,000 tons = 907.1848 metric tons

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[a]While 1,000 board feet is theoretically equivalent to 2.36 cubic meters, this is true only when a board foot is actually a piece of wood with a volume 1/12 of a cubic foot. The International 1/4-inch log rule is used by the USDA Forest Service in the East to estimate the product potential in board feet. The reliability of the estimate, using a conversion, will vary with the size of the log measure. The conversion given here, 3.48 cubic meters, is based on the cubic volume of a log 16 feet long and 15 inches in diameter inside bark (dib) at the small end. This conversion could be used for average comparisons when accuracy of 10 percent is acceptable. Since the board foot unit is not a true measure of wood volume and since products other than dimension lumber are becoming important, this unit may eventually be phased out and replaced with the cubic meter unit.

Powell, Douglas S.; Dickson, David R. Forest statistics for Maine: 1971 and 1982. Resour. Bull. NE-81. Broomall, PA: U.S. Department of Agriculture, Forest Service; 1984. 194 p.

A statistical report on the third forest survey of Maine (1982) as well as reprocessed data from the second survey (1971). Results of the surveys are displayed in 169 tables containing estimates of forest and timberland area, numbers of trees, timber volume, tree biomass, timber products output, and components of average annual net change in growing-stock volume for the period between surveys. These estimates were developed by several classifications including forest type, ownership, species, size, and quality. Data are presented at three levels: state, geographic sampling unit, and county.

ODC 905.1(741)

Keywords: Forest survey, inventory, area, volume, change, growth, removals, mortality, counties.

U.S. GOVERNMENT PRINTING OFFICE: 1984—705-029/526

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United States
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**Northeastern Forest
Experiment Station**

Resource
Bulletin NE-82

1984

Identifying Aboveground Wood Fiber Potentials in New York State

Eric H. Wharton

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Abstract

New York forests are made up of more than just th growing stock that is measured during conventiona forest inventories. A biomass inventory, completed in 1980, showed that New York commercia forest lands contain nearly 1,164.4 million green tons of aboveground tree biomass, or an average o 75.6 green tons per acre. Conventional growing stock accounted for 57 percent of the total wood fiber supply. The rest was nongrowing stock that includes cull trees, previously noncommercial tre species, small trees, and tree tops. Utilization studies conducted in New York showed that 1.7 million green tons of wood residues generated by harvesting and processing industrial wood product are not being used, but that such residues could be recovered for certain forest products. Standing aboveground tree biomass may be more expensive to recover than residues because of suc physical and socioeconomic constraints as tract size, terrain condition, and the attitude of forest-land owners toward harvesting.

The Author

Eric H. Wharton, research forester, received a B.A. degree from Lycoming College in 1974, and an M.F. degree from Duke University in 1975. He joined the Northeastern Forest Experiment Station's Forest Inventory and Analysis unit in 1978, and is now a timber removals analyst.

Identifying Aboveground Wood Fiber Potentials In New York State

Eric H. Wharton

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Highlights

- Almost 1,164.4 million green tons of aboveground tree biomass were estimated to be on New York's commercial forest lands (public and private lands excluding forest preserves) in 1980.
- Softwoods account for more than 268.6 million green tons of aboveground tree biomass (23 percent) and hardwoods account for almost 895.8 million green tons (77 percent).
- Concentrations of aboveground tree biomass average 75.6 green tons per acre of commercial forest land.
- Conventional growing stock accounts for 57 percent of the aboveground tree biomass statewide. The tops of growing-stock trees account for 18 percent, cull trees for 9 percent, and other sources for 16 percent.
- Four percent of the aboveground tree biomass harvested for sawlogs and veneer logs, 20 percent of the biomass harvested for pulpwood, and 87 percent of the biomass harvested for fuelwood came from nongrowing stock.
- Logging and processing industrial wood products generated 1.7 million green tons of unused wood residues.
- Fifty percent of the aboveground tree biomass is in stands of less than 50 acres and therefore may be unavailable for mechanized harvesting like whole-tree chipping.
- Sixty-nine percent (9.9 million acres) of the commercial forest land in New York belongs to private forest-land owners who are willing to have timber harvested from their land.

Background

The U. S. Forest Service periodically inventories every state in the nation, assessing each state's timber resources and how they are being used. The Forest Inventory and Analysis unit of the Northeastern Forest Experiment Station has inventoried New York's timber resources on three occasions, first in 1953, and for the second time in 1968. After the third and latest inventory was completed in 1980, Considine and Frieswyk (1982) and Considine (1983) reported on a new portion of the resource; biomass estimates were included which can be used to identify additional sources of wood fiber.

Most of the interest in estimating biomass has originated only within the last decade, although the techniques are not new. Young pioneered much of the biomass research (Young 1979), but such research was not given much attention in the United States until the 1970's.

The energy crisis that was first felt in 1973 and the growing acceptance of whole-tree chipping are two important reasons why interest in estimating biomass has increased. This author and others have discussed these reasons in the literature. Now we must satisfy the increasing demand for information about the wood fiber supply.

Much of the data that is collected during conventional forest inventories can be used to estimate biomass. Biomass data can be generated by applying average weights per tree to stand table data (numbers of trees by diameter class from previous inventories). This technique was used in a previous study to supply biomass statistics for each state in the Northeast when national biomass tables were being compiled for the first time (U.S. Department of Agriculture 1981).

New York was included in this early attempt to assess biomass, but the statistics did not provide the detail necessary to analyze the wood fiber supply adequately. Softwoods and hardwoods at the state level were the finest breakdowns that could be provided.

The third inventory of New York has provided an opportunity to more closely examine the biomass resource, although other biomass estimates have been made. The New York State Energy Research and Development Authority has funded one such study (Research Foundation of State University of New York 1980) and Monteith (1981) has published a comprehensive report on the availability of New York biomass.

This publication is a recent attempt to quantify the wood fiber resource in New York. To estimate this resource, biomass equations were applied to tree data that was collected during 1978-79. I will report on the aboveground tree biomass resource on commercial forest land in New York, how the state's timber industry is using the resource, and what may be available for future use from residues and standing timber.

The biomass statistics are summarized by county, geographic unit, principal region, and state. County-level statistics are less reliable than unit-, region-, or state-level statistics because the sample sizes of the estimates are smaller. If this fact is recognized, the report should be a valuable asset to resource planners, timber harvesters, wood processors, and forest-land managers.

Definitions

It is usually unnecessary to publish an account of U.S. Forest Service definitions in our resource reports, except as an appendix. Most of the standards are well known, but the use of the term biomass[1] has raised many questions about just how much of the total wood resource we are really measuring. For this reason, a section of definitions seems appropriate, beginning with our previous inventory standards.

I do not mean previous in the sense that the standards will become outdated. Board foot is an accepted measure of sawtimber volume, and cubic foot is an accepted measure of growing-stock volume. It is also important to measure the forest in terms of weight because whole-tree chipping and weight scaling are becoming more common. Biomass is a simpler method of measuring the amounts of certain portions of the forest resource.

[1]This term and others are defined in the glossary.

The amount of woody material in sawtimber can be quantified by using the board foot measure. Sawtimber is the portion of the main stem between a 1-foot stump height and a 9-inch top diameter outside the bark (7-inch top for softwoods), or to the point where the main stem breaks up if that is before it reaches this minimum diameter (Fig. 1). Trees must be at least 11.0 inches dbh (diameter at breast height) for hardwoods and 9.0 inches dbh for softwoods.

Growing stock includes more of the tree stem, and is measured in cubic feet. It is the portion of the tree stem between a 1-foot stump height and a 4-inch top diameter outside the bark, or again to the point where the main stem breaks up if that is before it reaches this minimum diameter (Fig. 1). Trees must be at least 5.0 inches dbh.

Trees smaller than 5.0 inches dbh, cull trees, noncommercial tree species, and dead trees are excluded from both sawtimber and growing stock. Although the net cubic foot content of cull trees to a 4-inch top is estimated, it is not included in the total growing-stock volume estimates.

The biomass estimates presented here are the green weight of wood and bark in merchantable stems, tree tops, stumps above the ground, trees between 1.0 and 5.0 inches dbh, cull trees, and noncommercial tree species. These weight estimates are for the live, aboveground tree biomass component of the total forest resource (Fig. 1). Some portions of the resource are excluded, such as foliage, rotten wood, dead trees, shrubs and undergrowth, and the stump-root system below the ground.

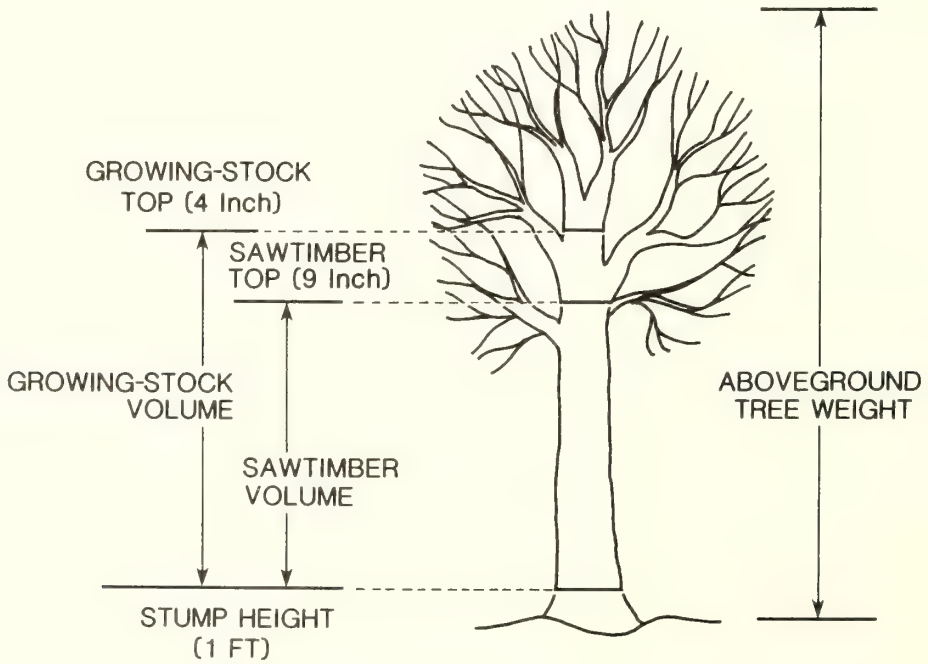

Figure 1.-- Volume and weight relationships of hardwood aboveground tree biomass components.

e Standing Wood Fiber Supply

w York commercial forest lands contain almost 164.4 million green tons of aboveground tree omass (Table 1). New York is not one of the st heavily forested states in the Northeast, but cause of its large commercial forest land area has one of the largest total amounts of oveground tree biomass. In the Northeast, only ine and Pennsylvania have significantly greater ounts of aboveground tree biomass (U.S. Department of Agriculture 1981).

w York is in the middle of the northern hardwood rest. There are more than 268.6 million green ns of softwood, but nearly 895.8 million green ns of hardwood aboveground tree biomass (Tables and 3). The proportions of individual species this predominantly hardwood forest will differ ending on the region of the state.

ecies Composition

e Northern and Southeastern regions both contain gher proportions of softwoods than the thwestern region (Fig. 2), but for different asons. Although primarily hardwoods, spruce and make up a significant proportion of the tree ber in the Northern region. This region is on e edge of the northern coniferous forest that ends through Maine. Here, 30 percent of the veground tree biomass is in softwood species. forests in the Southeastern region are 25 cent softwood, but contain more white and red e than the Northern region. The Southeastern ion is part of the southern hardwood forest t extends up through eastern Pennsylvania and ng the eastern side of the Hudson River Valley. es, hemlocks, and oaks predominate here. In t, the greatest proportion of oak aboveground e biomass -- 23 percent -- occurs in this ion.

Southwestern region is typical of the northern dwood forest. Maples predominate, with hemlock only important softwood species. Here also is arge amount of an underutilized species: red le. This species has increased more in volume n any other species. Red maple has become a nificant component of the oak-hickory and thern hardwood timber stands already ablished throughout the state. Although red le accounts for 20 percent of the growing-stock ume found on commercial forest land (Considine Frieswyk 1982), only 7 percent is harvested industrial wood products (Nevel and others 2).

Red maple is only one example of how the resource responds to timber harvesting practices. Frequently, wood is processed by trying to fit the resource to a single product, rather than fully utilizing the resource for whatever products it may yield. As a result, certain species are underutilized and become major components of some timber stands.

Such underutilized species may not continue to predominate. Most stands of timber will revert to the climax types, except where these climax types like oak are held in check by insect, disease, and animal damage. In the meantime, the resource could be used more fully by harvesting previously undesirable[2] tree species along with tree tops and cull trees for pulp, reconstituted board products, and energy.

Concentrations

Knowing biomass by species is important, but management decisions are also based on concentrations of biomass. New York timberlands average an estimated 75.6 green tons of aboveground tree biomass per acre of commercial forest land (Table 4). Higher concentrations of aboveground tree biomass are found in the eastern geographic units, while lower concentrations are found in the western units; the lowest concentrations are found in the Lake Plain unit. In this unit, the best sites have been converted to agriculture or have been urbanized, and the remaining sites contain smaller concentrations of biomass than other parts of the state.

Certain areas may have heavy concentrations of biomass, but low proportions of commercial forest land (Fig. 3 and 4). This situation usually occurs in agricultural or urban-suburban areas in the state, but also occurs in heavily forested areas that have been free of large-scale agricultural and urban-suburban encroachments over the years.

Counties in the Eastern Adirondack unit are an example of areas with heavy concentrations of biomass and small proportions of commercial forest land. Biomass in these counties average 90.0 green tons per acre, but the proportion of commercial forest land here is only slightly higher than most counties in the Lake Plain unit. In the Eastern Adirondack unit, a high proportion of reserved forest land decreases the amount of forest land commercially available. A large quantity of biomass may seem available, when in fact the stands may be separated by areas reserved for recreational or other purposes.

A little less than half of the aboveground wood resource has largely been ignored by conventional inventories in the past. Most of the aboveground tree biomass in New York is in growing stock (Table 5). Nearly 657.0 million green tons -- 57 percent of the aboveground tree biomass -- are in merchantable stems. An additional 213.4 million green tons -- 18 percent of the aboveground tree biomass -- are in the tops of growing-stock trees. These tree tops, plus other sources of nongrowing stock account for nearly 507.4 million green tons, or 43 percent of the aboveground tree biomass.

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[2]Undesirable for conventional forest products. The forest products industry is changing and terms like merchantable, commercial, and undesirable no longer apply.

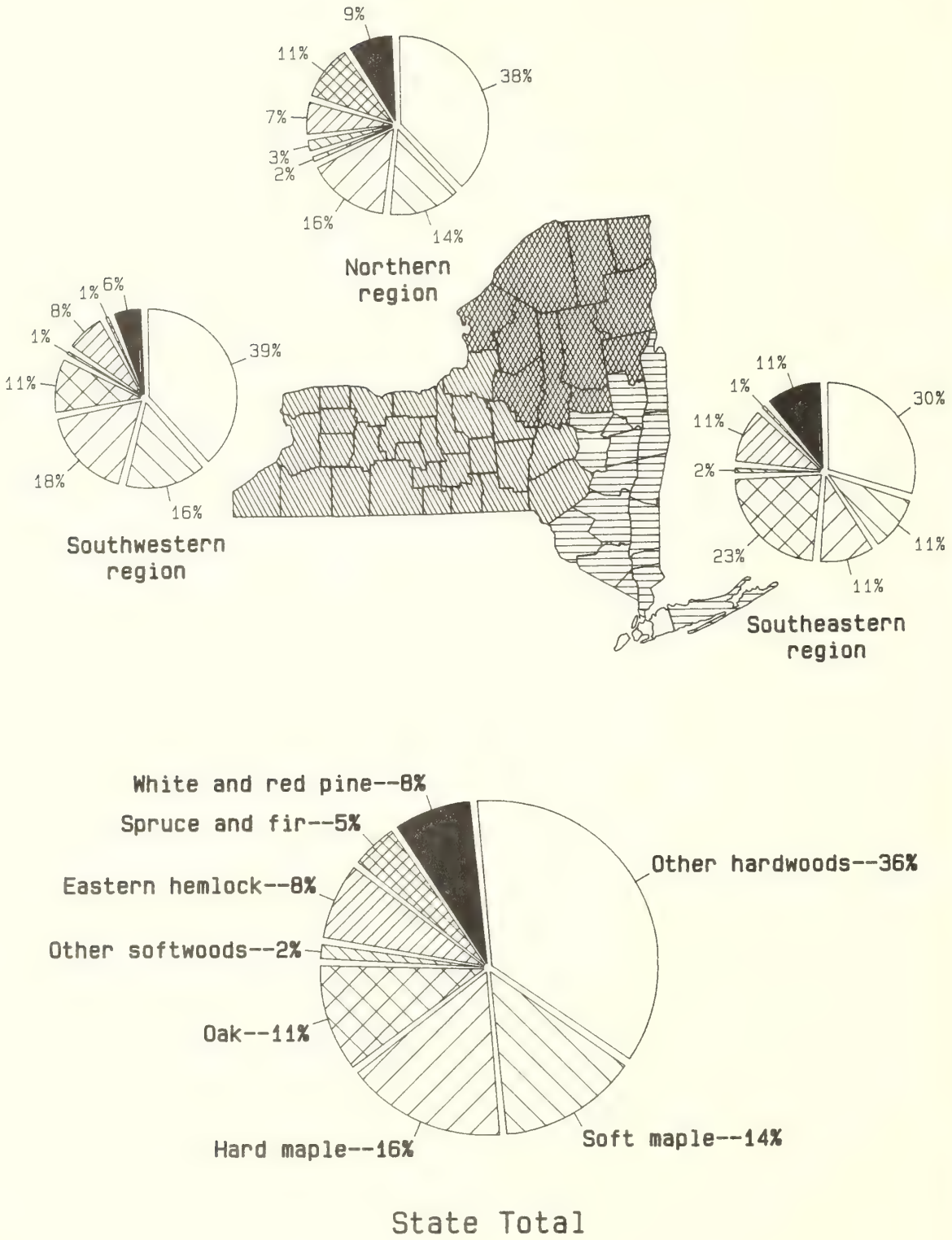


Figure 2.--Species distribution of aboveground tree biomass by geographic regions in New York, 1980.

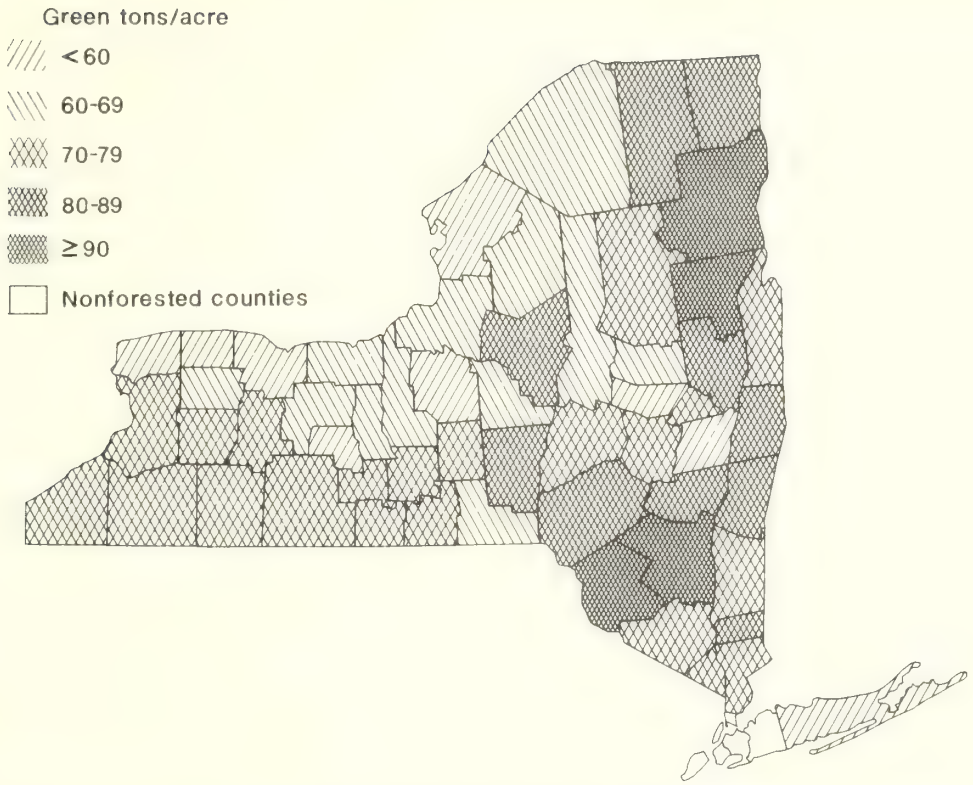


Figure 3.--Concentrations of aboveground tree biomass in New York, 1980.

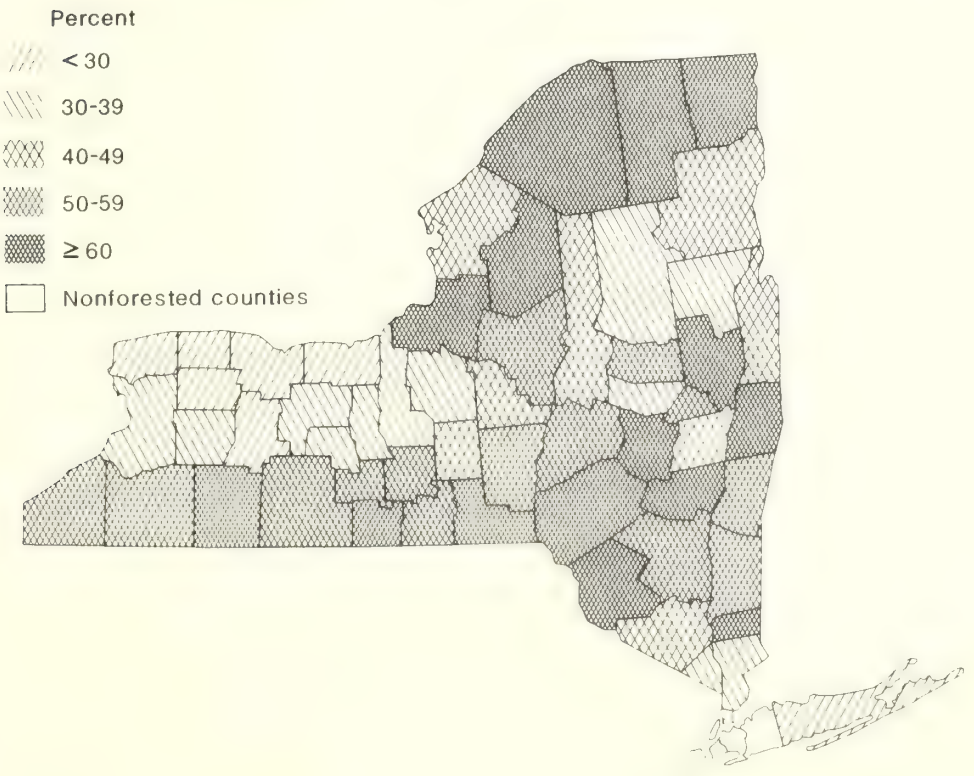


Figure 4.--Distribution of commercial forest land in New York, 1980.

The proportion of nongrowing stock indicates much about the characteristics of the resource in the different units, and what additional sources might be available to be recovered. Nongrowing stock accounts for nearly as much aboveground tree biomass as does growing stock in the St. Lawrence - Northern Adirondack and Western Adirondack units (Fig. 5). Timber stands here are not in prime condition; many of the trees may be of poor form, excessively branchy, or contain mostly rot. Improving recovery in the two units involves harvesting mostly small, poorly-formed, and rotten trees. Such a process is both time consuming and costly with current harvesting techniques.

In some units, like the Southwest Highlands unit, not much more than tree tops could be recovered after industrial wood products are removed because the proportion of cull trees and other sources of biomass like small trees is low compared to other units. Conversely, harvesting aboveground tree biomass is a good opportunity to clean up stands that are in poor condition in the St. Lawrence - Northern Adirondack and Western Adirondack units.

Current Wood Fiber Use

The Forest Inventory and Analysis Staff send out questionnaires to all wood manufacturers during the year when the inventory is conducted. For that year, we assess how much timber is being produced and consumed in the state. Our canvass of New York wood manufacturers shows that nearly 4.8 million green tons of wood fiber were removed for industrial forest products during 1979, and that the majority -- 77 percent -- was hardwood species (Table 6).

The proportion of hardwoods harvested is fairly constant throughout New York, but certain regions of the state show considerably less harvesting activity than others. Southeastern New York, for example, has 26 percent of the aboveground tree biomass, but only 19 percent of the total harvest occurs there. Northern New York, conversely, has 35 percent of the resource, but almost 48 percent of the harvesting in New York is done there. The characteristics that affect timber harvesting in the three regions have been discussed by Nevel and others (1982). A better indication of wood fiber use in New York is the source of wood used for various products, rather than just the proportion of biomass harvested.

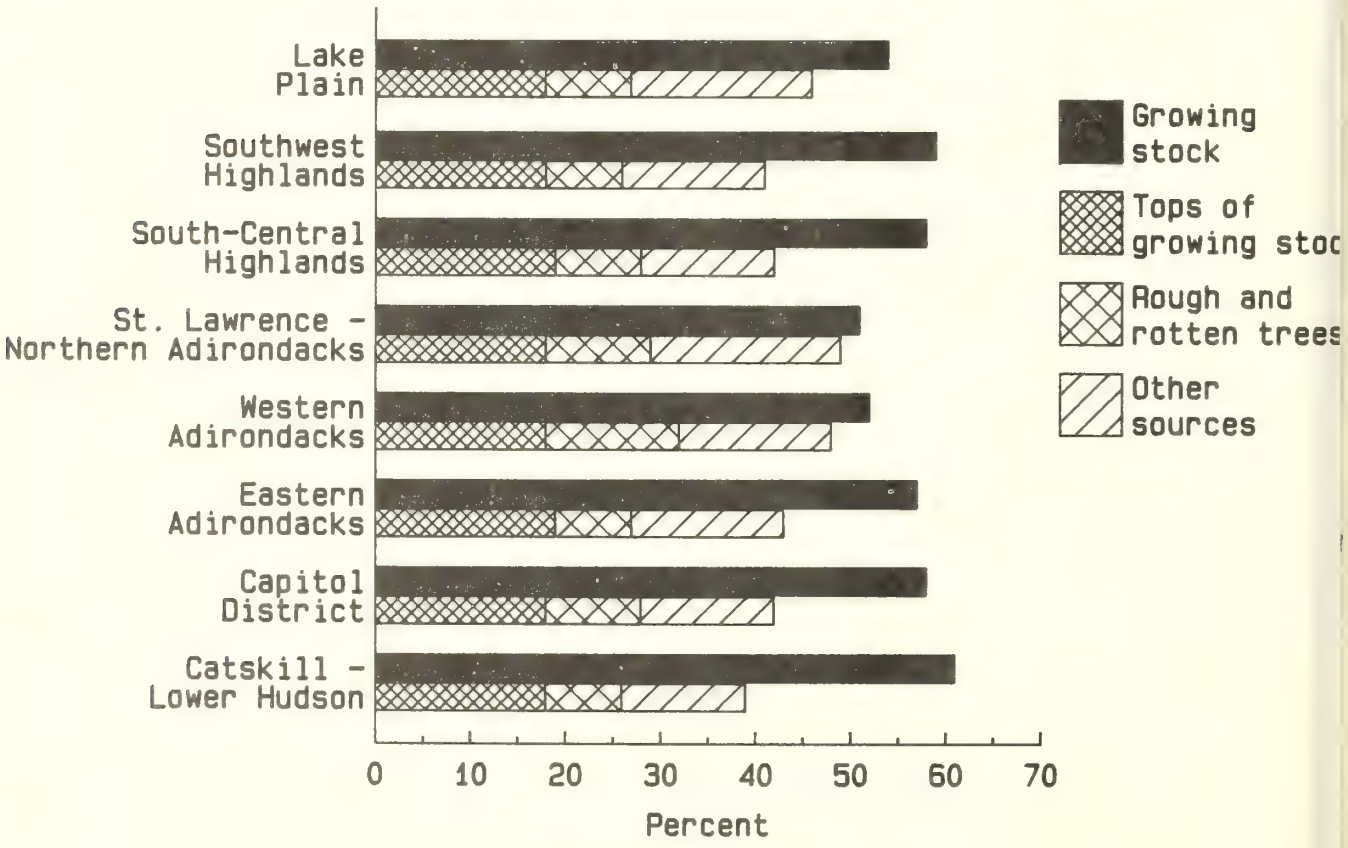


Figure 5.--Components of aboveground tree biomass by geographic units in New York, 1980.

We measure trees at harvesting operations before and after they are cut into products. The kind of tree harvested and the difference between what is inventoried and what is cut yield two kinds of information: 1) what kind of wood fiber is being used for industrial forest products, and 2) how much wood remains as residue. In addition, the New York Department of Environmental Conservation (1981) has published information on the sources of wood fiber used for fuelwood, the most important nonindustrial wood product. When we supplement our industrial wood use information with this fuelwood information, we can identify what sources of wood fiber are being used for the three major forest products in New York: sawlogs and veneer logs, pulpwood, and fuelwood.

The proportion of wood that is harvested from growing stock is different for the three major forest products (Fig. 6). For example, very little of the sawlog or veneer log biomass is harvested from nongrowing stock. Standards are much more restrictive for these products than for either pulpwood or fuelwood; more nongrowing stock can be used in products that do not require such high-quality material. Currently, pulpwood harvesters use about 20 percent nongrowing stock and fuelwood harvesters use 87 percent.

The proportion of growing stock used for fuelwood concerns forest-land managers today. However, fear that fuelwood harvesting is depleting supplies of quality timber may be unfounded. Only a small amount of the wood fiber used for fuelwood today is harvested from timber suited for high-value products like sawlogs and veneer logs.

Recovery of wood fiber may continue to improve if markets can be found for unconventional products. New products can be processed that better utilize the existing resource, and some of the traditional products can be processed using more nongrowing stock. Fuelwood and pulpwood harvesters exemplify these possibilities. At the time of the last inventory, only 10 percent of the pulpwood was harvested from nongrowing stock (Ferguson and Mayer 1970). Today, 20 percent of the pulpwood is harvested from nongrowing stock.

So far, the supply of nongrowing stock for low-value products like fuelwood has been ample. However, the proportion of nongrowing stock used for all products may change as more markets for fuelwood products are found. More low-value products may be harvested from high-quality material unless wood fiber potentials can be identified and emphasis placed on developing more cost-effective techniques to recover low-quality material.

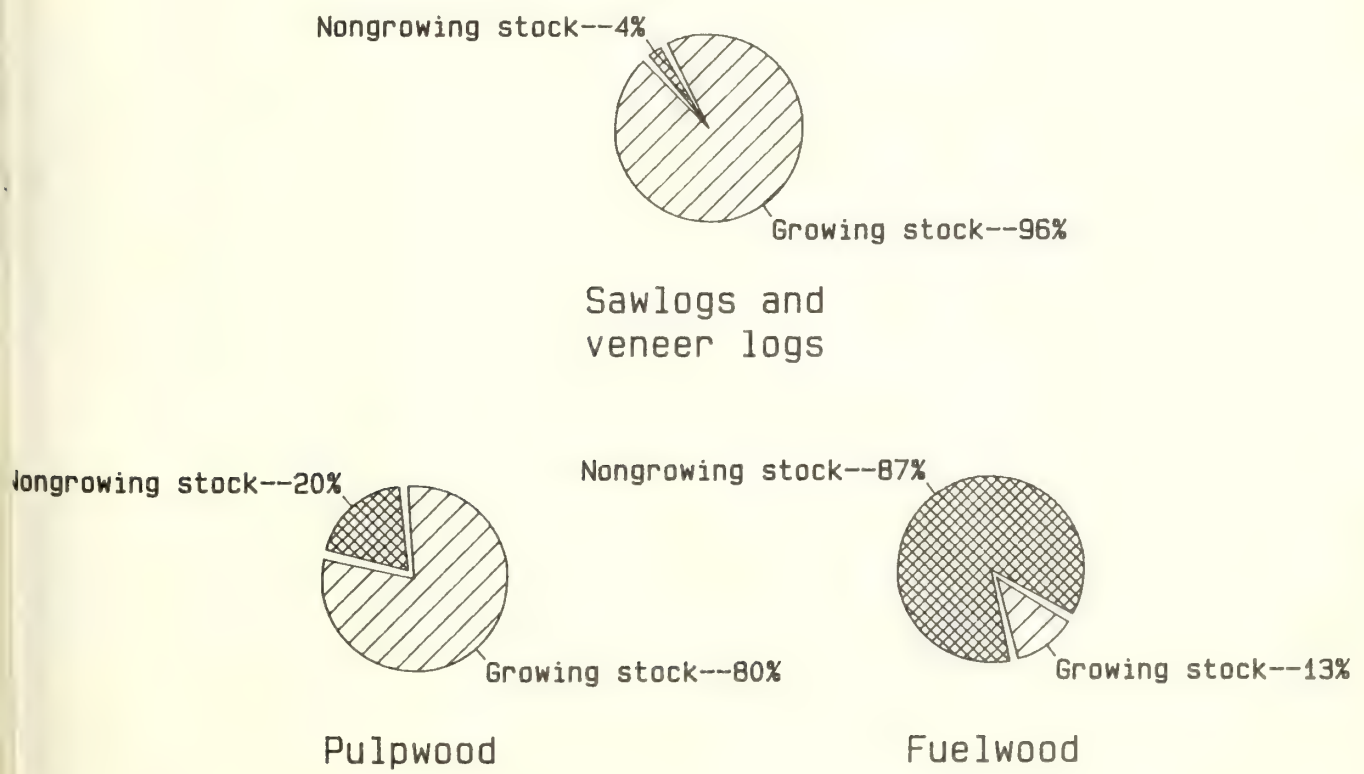


Figure 6.--Wood fiber used for three selected forest product groups in New York, 1979.

Improving Wood Fiber Recovery

Today, methods to improve recovery of wood fiber from timberlands are emphasized. Private landowners are being encouraged to use their resources better, and in some cases are leading the way. Public land managers are increasing revenues by harvesting aboveground tree biomass that was largely ignored in the past.

Most of the additional wood fiber harvested is converted to energy, but some is processed into other wood products. Pulpmills in particular are now using some additional sources of wood fiber. Reconstituted board products are being processed in New Hampshire and Maine, though not as yet in New York. Other uses like adding chips to sludge in municipal waste disposal are becoming more common, and the residential fuelwood market is strong in New York. During the 1980-81 heating season, an estimated 3.3 million cords (8.4 million green tons) of fuelwood were burned in residences across the state (New York Department of Environmental Conservation 1981). This volume of fuelwood exceeds the volume of wood removed for all industrial forest products during 1979, although most of the fuelwood came from nongrowing stock.

It is apparent why so much concern has been expressed recently about the increasing use of timberlands for energy and similar products. However, harvesting for industrial wood products today wastes half of the aboveground wood resource. Except when wood is harvested for pulp or reconstituted board products, industrial wood harvesters cannot use certain parts of the resource, and will leave much of it behind as wood residue. Harvesting products like fuelwood captures what is not used for the more conventional industrial wood products, rather than competing for the same sources of roundwood.

Residues

The most important untapped sources of wood fiber are dead trees, logging residues, manufacturing residues, and material left behind when land is cleared (Bones 1980). These sources will be lost if they are not recovered quickly, and except for some dead trees, are all byproducts of forest land use. Consequently, these residues should be prime targets for recovery. Access to them has been gained already, or they are concentrated at or near the point of processing.

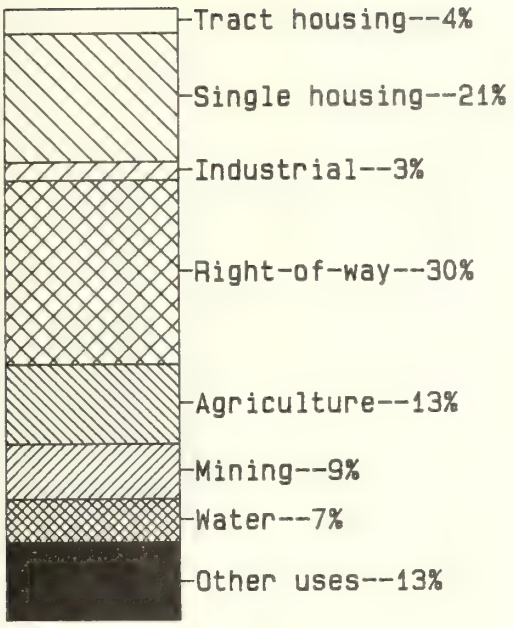
Wood processors traditionally use manufacturing residues first because these residues are the most accessible. However, the proportion of manufacturing residues left unused has decreased over the years. In 1967, about 24 percent of the wood residues generated from primary processing in New York were unused. Today, that proportion has shrunk to only 6 percent, or 0.1 million green tons (Nevel and others 1982). It has become mor difficult to obtain manufacturing residues becau other industries are competing for these residue,

Logging residues are an alternative; although mo expensive, they may still be profitable to recov because the cost of getting to them has been absorbed by harvesting operations. In 1979, an estimated 2.0 million green tons of logging residue were generated by harvesting industrial wood products, although some had already been recovered for fuelwood. Of the total fuelwood consumed in New York during the 1980-81 heating season, 5 percent came from logging residues (New York Department of Environmental Conservati 1981). This means that 0.4 million green tons m have been recovered, leaving 1.6 million green tons unused.

Our assessment of logging and manufacturing show how much of the aboveground resource is being removed by harvesting and processing industrial wood products, and how much is left behind. Mor than 13.2 million green tons were removed during 1979 for all wood products, including fuelwood. The 1.7 million green tons of unused manufacturi and logging residues were 13 percent of wood product removals, and have a number of potential uses. Pulpmills, processors of reconstituted board products, and residential fuelwood users will compete for most of the residues, especiall where timber is in short supply.

Competition may not be severe for material left unused when land is cleared. We have assessed h much land area changed from a forest land use to nonforest land use between inventories. The woo that is removed during land clearing operations likely to be near residential fuelwood markets because most of the land cleared in New York was for urban, suburban, or related uses (Fig. 7). Housing and industrial development accounted for 28 percent of the commercial forest land area th was cleared between 1968 and 1980. An additiona 30 percent was cleared for road and powerline rights-of-way, usually associated with the infringement of urban and suburban areas on fore land. Only 22 percent of the forest land was cleared for rural land uses like agriculture and mining.

Most of the material that is removed to clear land, regardless of the final land use, is not recovered for industrial wood products. Nearly 1.0 million green tons of aboveground tree bioma were removed annually in clearing almost 19.9 thousand acres of commercial forest land in New York. Only 16 percent was used for industrial wood products. Currently, about half of the remainder is used for fuelwood. In the past thi material was piled and burned on the site, but ordinances often prevent this today. Recovering the material for fuelwood is an attractive alternative to trucking it to landfills.



.gure 7.--Distribution of final land uses resulting :om land clearing operations in New York, 1980.

:anding Trees

)od residue is an immediate source of additional 'ber, but it is only one alternative. For other)urces, we must turn to the resource itself. How 'ich would be available from the standing wood .ber supply if whole-tree chipping were used? :cording to Young[3], three factors significantly :fect the availability of standing timber: land se regulation, terrain condition, and landowner :titudes.

cannot address the problem of land use :gulation here, but it is possible to identify)w landowners feel about harvesting, and how much the forest land base is excluded because of :eep slopes or limited access. Tract size is 10ther important limitation because the smaller :acts may restrict harvesting. Landowner :titudes are socioeconomic limitations, while)th tract size and terrain condition impose 1ysical limitations.

Whole-tree chippers, especially the larger models, are expensive to operate and move. Huyler (1982) found that a commercial chipping operation using a 22-inch whole-tree chipper and producing a 15.3 green tons per hour must run 7 hours each day to break even. To offset the high capital investment required, areas to be harvested must be large and close together. Local costs will dictate the minimum acreage required, but whole-tree chipping may not be profitable on less than 25 acres with a 25-mile move (Percival 1982). In New York, whole-tree chipping may not be profitable on less than 50 acres since the distance between tracts may be more than 25 miles.

Small stands of timber contain most of the aboveground tree biomass in New York. Stands of less than 50 acres account for almost 50 percent of the aboveground biomass (Table 7). Stands of more than 100 acres account for only 25 percent of the aboveground tree biomass.

The amount of aboveground tree biomass in stands varies across the state. Most of the smaller blocks of land can be found in western and southeastern New York, where the proportion of aboveground tree biomass in stands of more than 100 acres could conceivably drop to less than 25 percent as more land is tied up in smaller ownerships. Larger stand sizes are more common in northern New York, but there are more accessibility problems.

Slope and the distance to the nearest road affect accessibility the most. However, only 8 percent of the total wood fiber is on land where slopes exceed 30 percent or where the nearest road is more than 2 miles away (Monteith 1981). This small percentage could probably be reached if timber harvesters used cable logging systems or traveled farther into timberlands to recover aboveground tree biomass.

The most important socioeconomic constraint is how private forest-land owners feel about timber harvesting on their land, but it is a complex issue. Not only is there frequent turnover among landowners, but each landowner's intention to harvest may change. Certain groups of landowners may be opposed to harvesting timber because of environmental concerns or past experience with loggers. A short distance away other groups of landowners may be very receptive to harvesting, and may feel that harvesting aboveground tree biomass is the most efficient way to leave the stand aesthetically pleasing after harvesting. Therefore, any conclusions we draw are at best, tentative.

Each time we inventory a state we send questionnaires to a sample of private forest-land owners. We received 1,641 responses from 2,774 questionnaires sent out during 1979 to New York forest-land owners. These questionnaires help to identify certain attitudes of private forest-land owners that will affect the availability of the resource. The most important is the owner's intention to harvest.

Young, Harold E. Forest biomass as a renewable source of energy: inventory, productivity, and availability. Prepared for: UNITAR conference on long term energy resources; 1979 November 26 - December 7; Montreal, Canada. [Unpublished]. 18 p.

Figure 8.--Landowners who have small parcels of forest land are less likely to harvest timber because they are concerned about environmental impacts to their woodlots. Small equipment has been designed to reduce environmental impacts on these sites.

Birch (1983) found that more than 14.4 million acres of commercial forest land is owned by private forest-land owners, and that most of this is available for harvesting (Table 8). Almost 69 percent of the commercial forest land area -- 9.9 million acres -- is available.

The proportion available from nonindustrial private forest-land owners is related to how much acreage they own. I was unable to obtain detailed estimates of harvesting tendencies for very small ownerships: the 1- to 49-acre class is the smallest unit available for analysis. Approximately 56 percent of the commercial forest land area in ownerships of 1 to 49 acres is available for harvesting. This increases to 76 percent in ownerships of 500 acres or more. Assuming that the smallest ownerships are too small to be harvested, 6.4 million acres are still available from nonindustrial private forest land.

As expected, almost all of the land owned by forest industry is available for harvesting. Adding forest industry lands to nonindustrial private forest lands that are available brings the amount of commercial forest land available for harvesting to 7.3 million acres.

Much of the 4.5 million acres presently considered unavailable because of landowner attitudes may become available as better harvesting systems are developed. Small harvesting and wood transport equipment has been developed that is economical and leaves the stand in better condition than the more conventional equipment (Fig. 8). Increased use of small equipment and cable logging systems will help landowners to realize that timber harvesting need not cause irreversible damage to their woodlots.

Opportunities

The merchantable bole portion will continue to be the most valuable part of the tree, but the increased use of tree biomass for pulp, reconstituted board products, and energy indicate that we may be heading toward a more fiber-based wood products industry. Conservative projections by the U.S. Forest Service for the years 1976 to 2030 (U.S. Department of Agriculture 1982) show lumber demand increasing by 40 percent, but paper and board demand increasing by 145 percent. In addition, the U.S. Forest Service expects residential fuelwood use to rise from 6 to 26 million cords -- a 333-percent increase.

Some of the new fiber-based products have not yet been manufactured in New York, but they may in the future because there is biomass available and the demand for these products is increasing. Residue alone can support a number of new industrial and nonindustrial ventures in the state. For example, the 1.7 million green tons available represent 0.014 quads[4] of energy. That is almost 20 percent of what was burned in New York households as fuelwood during the 1980-81 heating season. There are other sources as well; the cull trees, previously noncommercial tree species, salvable dead trees, and small trees scattered throughout New York's timberlands can also be used for energy or fiber.

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[4]A quad is the accepted unit of measure for expressing energy values; it is equal to 1 quadrillion btu (british thermal units).

Most of the biomass is available for harvesting, but on some sites it may be advantageous to leave the tree tops. The branches contain about 40 percent of the nitrogen and about 30 percent of the calcium found in the total tree (foliage, branches, stem, and roots together) in a typical northern hardwood forest; the foliage contains very little of these nutrients (Marion 1979). On most sites, repeated removals of tree nutrients by conventional harvesting will not seriously affect site conditions, but removing tree tops as well may cause losses of nutrients that cannot be replenished (Foster and Morrison 1983).

Nutrient loss is an important consideration because nutrients are removed from the site whenever forest products are removed. Local conditions often will dictate how detrimental this will be. Some time in the future, tradeoffs must be developed between using the aboveground wood resource for products and leaving some of it behind to retain nutrients.

Recovering aboveground tree biomass for energy and wood fiber products can have far-reaching consequences, both positive and negative. The purpose of this paper is not to address all of these implications. A publication by Johnson and others (1980) clearly outlines the advantages and disadvantages.

One important concern is that using aboveground tree biomass has been primarily a response to economic stimuli. For example, it was rising energy costs in the 1970's that caused alternative sources to be found from the wood resource. That this may have utilized the resource better was largely an afterthought. Although improved utilization is now being stressed, harvesting biomass in the future will take an economic commitment. The value resulting from processing unconventional fiber-based products has not yet offset the cost of obtaining the material in many places because of current markets and technologies. However, the opportunities are there if cost-effective measures can be found to improve wood fiber recovery for both industrial and nonindustrial wood products.

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Glossary

Aboveground Tree Biomass. The net green weight of wood and bark in all live trees above ground level. Net weight equals gross weight, less deductions for rotten cull.

Biomass. The quantity of material in any living organism measured in terms of its weight.

Commercial Forest Land. Forest land producing or capable of producing crops of industrial wood products (more than 20 cubic feet per acre per year) and not withdrawn from timber utilization like forest preserves.

Commercial Species. Tree species presently or prospectively suitable for industrial wood products. Excludes species typically of small size, poor form, or inferior quality like hawthorn and sumac.

Cord. A unit of measure for stacked roundwood, containing 128 cubic feet of wood, bark, and air space. In the Northeast, a cord contains 85 cubic feet of solid wood. A standard cord, commonly 4 feet by 4 feet by 8 feet, is not the same as the "face cord" used in residential fuelwood marketing.

Cull Trees. (1) Live trees of commercial species that do not contain at least one 12-foot sawlog or two noncontiguous sawlogs, each 8 feet or longer, now or prospectively, and do not meet regional specifications for freedom from defect primarily because of rot (more than 50 percent of the cull volume in a tree is rotten), or because of roughness or poor form. (2) All live trees of noncommercial species.

Forest Industry Lands. Lands owned by companies or individuals operating industrial wood manufacturing plants.

Forest Land. Land at least 10 percent stocked (containing at least 7.5 square feet per acre of basal area) with trees of any size or land that formerly had such tree cover and is not currently developed for nonforest use. The minimum classification of forest land is 1 acre.

Fuelwood. Wood used by conversion to some form of energy, primarily residential use, and commonly expressed in terms of cords.

Growing-stock Trees. All live trees of commercial species, 5.0 inches dbh and larger, except rough and rotten trees.

Growing-stock Volume. Net volume, in cubic feet, of growing-stock trees from a 1-foot stump to a minimum 4.0-inch top diameter outside bark of the central stem, or to the point where the central stem breaks into limbs. Net volume equals gross volume, less deduction for cull.

Industrial Wood Manufacturing Plant. A plant that converts round timber into wood products such as woodpulp, lumber, veneer, cooperage, and dimension products.

Industrial Wood Products. All commercial roundwood products except residential fuelwood.

Logging Residues. The unused portions of growing-stock trees harvested or killed in the process of logging.

Manufacturing Residues. Wood materials that are generated when round timber (roundwood) is converted into wood products. This includes slabs, edgings, trimmings, miscuts, sawdust, shavings, veneer cores and clippings, and pulp screenings.

Merchantable Stem. The main stem of the tree between the 1-foot stump and the 4-inch top; wood and bark.

Noncommercial Tree Species. Tree species of typically small size, poor form, or inferior quality that normally do not develop into trees suitable for industrial forest products.

Nonforest Land. Land that has never supported forests, or land formerly forested but now in nonforest use such as cropland, pasture, residential areas, and highways.

Nongrowing-stock. Cull trees, noncommercial tree species, small trees, and the tops of growing-stock trees.

Nonindustrial Private Forest Land. All commercial forest land other than land owned by forest industry; or by federal, state or local agencies (public land).

Nonindustrial Wood Products. All roundwood products not used in the industrial sector, such as residential fuelwood.

Pulpwood. Any log or bolt from which woodpulp is to be made; usually measured in bolts of 4, 5, or 8 feet, and somewhat smaller in diameter than sawlogs or veneer logs. Includes whole-tree chips or chipped plant byproducts (manufacturing residues that are used).

Reconstituted Board Products. Any wood product that has been manufactured by converting wood to particles by a mechanical process and then bonding them together. Includes flakeboard, particleboard, oriented strand board, fiberboard, hardboard, and chipboard.

Removals. The amount of wood removed from the inventory for roundwood products plus logging residues, the amount destroyed during land clearing, and the amount of standing trees growing on land that was reclassified from commercial forest land to noncommercial forest land (forest preserves).

Salvable Dead Trees. Trees that have died from natural causes but can still be recovered for a forest product.

Sawtimber. Live trees of commercial species at least 9.0 inches dbh for softwoods or 11.0 inches for hardwoods that contain at least one 12-foot sawlog or two noncontiguous 8-foot sawlogs, and that meet regional specifications for freedom from defect.

Sawtimber Volume. Net volume, in board feet, of sawtimber. Net volume equals gross volume less deductions for rot, sweep, and other defects that affect use for lumber.

Small Trees. Live trees that are less than 5.0 inches dbh, but larger than 1.0 inches dbh.

Stumps. The main stem of the tree between the ground level and 1-foot height; wood and bark.

Tree Tops. Branches and main stem above a 4-inch top diameter outside bark. Excludes foliage.

Conversions and Equivalents

1 ft^3 softwoods = 0.027 green tons

1 ft^3 hardwoods = 0.033 green tons

1 standard cord = 85 ft^3 solid wood

1 standard cord = 212 ft^3 chips

1 standard cord = 2.56 green tons

1 green ton = 8.5 million btu

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Table 1.--Net aboveground tree biomass of all live trees on commercial forest land and sampling errors, by county and geographic unit, New York, 1980

County[a] and geographic unit	Total aboveground tree biomass	Sampling errors
	--- thousand green tons ---	-- percent --
Cayuga/Seneca	13,095.1	12
Erie	16,352.4	8
Genesee	5,759.9	15
Livingston	8,739.8	14
Madison	11,805.7	9
Monroe	4,668.4	15
Niagara	2,823.4	23
Onondaga	9,859.8	11
Ontario	8,985.0	12
Orleans	4,293.3	17
Oswego	28,340.6	6
Wayne	6,722.5	16
Wyoming	10,680.6	11
Yates	4,691.4	19
Lake Plain	136,817.9	3.1
Allegany	30,397.3	7
Cattaraugus	33,510.2	7
Chautauqua	26,461.0	8
Steuben	36,902.5	6
Southwest Highlands	127,271.0	3.4
Broome	18,769.4	8
Chemung	11,398.7	9
Chenango	27,860.3	8
Cortland	11,483.9	6
Delaware	54,188.1	4
Otsego	25,829.3	5
Schuyler	9,474.6	10
Tioga	14,454.1	8
Tompkins	13,251.1	8
South-central Highlands	186,709.5	2.2
Clinton	37,458.2	6
Franklin	55,862.3	4
Jefferson	15,375.1	15
St. Lawrence	75,877.2	4
St. Lawrence-N. Adirondack	184,572.8	2.6
Fulton	12,391.9	9
Herkimer	25,002.4	6
Lewis	38,636.5	5
Oneida	33,475.4	8
Western Adirondack	109,506.2	3.5

Table 1.--Net aboveground tree biomass of all live trees on commercial forest land and sampling errors, by county and geographic unit, New York, 1980

County[a] and geographic unit	Total aboveground tree biomass	Sampling errors
	--- thousand green tons ---	-- percent --
Essex	51,614.0	6
Hamilton	28,812.4	5
Warren	33,713.5	6
Eastern Adirondack	114,139.9	3.3
Albany	9,549.7	13
Columbia	18,761.4	7
Montgomery	4,616.6	21
Rensselaer	21,989.3	7
Saratoga	30,623.0	6
Schenectady	4,879.3	16
Washington	19,359.1	8
Capitol District	109,778.4	3.3
Dutchess	23,395.6	7
Greene	21,728.0	6
Orange	18,766.6	12
Putnam	7,211.3	7
Schoharie	19,836.8	7
Suffolk	5,291.1	27
Sullivan	47,676.9	6
Ulster	42,644.5	6
Westchester/Rockland	9,024.3	11
Catskill-Lower Hudson	195,575.1	2.7
Total, all units	1,164,370.8	1.0

[a] Multi-county groupings are used for counties with too few forested field plots or with other sampling anomalies. This is done when more detailed county-level data are presented in order to minimize sampling errors.

Table 2.--Net aboveground tree biomass of all live softwood trees on commercial forest land, by county, geographic unit, and selected species, New York, 1980

County[a] and geographic unit	Eastern white and red pines	Spruce and balsam fir	Eastern hemlock	Other softwoods	Total softwoods
	thousand green tons				
Cayuga/Seneca	78.1	207.4	615.5	82.3	983.3
Erie	1,790.3	92.6	2,027.9	475.0	4,385.8
Genesee	71.7	.0	.0	97.2	168.9
Livingston	787.1	135.4	601.6	229.4	1,753.5
Madison	888.9	938.7	1,139.4	132.6	3,099.6
Monroe	.0	.0	66.6	392.4	459.0
Niagara	.0	.0	.0	.0	.0
Onondaga	127.9	213.5	491.5	79.1	912.0
Ontario	621.3	46.4	73.4	29.5	770.6
Orleans	.0	.0	118.9	.0	118.9
Oswego	2,239.5	72.7	3,310.4	1,110.6	6,733.2
Wayne	219.2	13.5	100.5	.0	333.2
Wyoming	34.4	529.1	1,082.1	400.8	2,046.4
Yates	268.7	.0	617.8	187.2	1,073.7
Lake Plain	7,127.1	2,249.3	10,245.6	3,216.1	22,838.1
Allegany	646.0	1,190.6	1,434.7	314.7	3,586.0
Cattaraugus	1,122.2	458.6	1,875.0	317.0	3,772.8
Chautauqua	819.7	269.7	2,660.8	628.8	4,379.0
Steuben	1,791.3	.0	2,834.4	54.4	4,680.1
Southwest Highlands	4,379.2	1,918.9	8,804.9	1,314.9	16,417.9
Broome	348.6	.0	1,870.9	53.7	2,273.2
Chemung	892.3	647.2	1,034.8	204.1	2,778.4
Chenango	3,357.3	1,454.6	3,801.4	625.7	9,239.0
Cortland	537.0	.0	211.6	600.1	1,348.7
Delaware	1,740.8	24.8	2,685.4	.0	4,451.0
Otsego	2,514.9	65.0	4,333.7	.0	6,913.6
Schuyler	1,105.2	.0	612.2	123.4	1,840.8
Tioga	1,692.8	497.0	903.7	100.2	3,193.7
Tompkins	1,223.7	.0	343.3	219.4	1,786.4
South-central Highlands	13,412.6	2,688.6	15,797.0	1,926.6	33,824.8
Clinton	2,987.3	4,067.4	522.9	2,418.9	9,996.5
Franklin	2,864.9	8,583.0	2,141.7	1,287.9	14,877.5
Jefferson	2,230.7	503.1	736.8	272.0	3,742.6
St. Lawrence	3,179.7	9,023.1	2,877.3	3,744.4	18,824.5
St. Lawrence-N. Adirondack	11,262.6	22,176.6	6,278.7	7,723.2	47,441.1
Fulton	884.9	434.7	2,927.0	122.2	4,368.8
Herkimer	616.7	4,001.5	2,770.7	62.6	7,451.5
Lewis	2,482.8	3,198.5	1,492.8	653.5	7,827.6
Oneida	3,022.5	245.7	3,624.0	481.7	7,373.9
Western Adirondack	7,006.9	7,880.4	10,814.5	1,320.0	27,021.8

Table 2.--Net aboveground tree biomass of all live softwood trees on commercial forest land, by county, geographic unit, and selected species, New York, 1980

County[a] and geographic unit	Eastern white and red pines	Spruce and balsam fir	Eastern hemlock	Other softwoods	Total softwoods
	thousand green tons				
Essex	8,986.2	4,401.4	5,125.5	1,447.5	19,960.6
Hamilton	634.1	7,356.9	1,603.2	33.3	9,627.5
Warren	10,535.0	995.1	5,483.8	528.8	17,542.7
Eastern Adirondack	20,155.3	12,753.4	12,212.5	2,009.6	47,130.8
Albany	2,884.8	.0	1,135.2	316.9	4,336.9
Columbia	2,865.2	576.6	1,119.8	93.1	4,654.7
Montgomery	834.6	.0	1,414.7	.0	2,249.3
Rensselaer	3,013.1	250.5	3,023.7	81.9	6,369.2
Saratoga	5,168.4	110.0	4,934.3	144.1	10,356.8
Schenectady	228.9	.0	367.0	55.6	651.5
Washington	1,379.4	34.0	3,667.6	81.4	5,162.4
Capitol District	16,374.4	971.1	15,662.3	773.0	33,780.8
Dutchess	222.0	44.9	594.0	816.1	1,677.0
Greene	4,425.8	98.1	1,277.1	242.2	6,043.2
Orange	221.2	554.6	998.6	595.9	2,370.3
Putnam	.0	.0	190.8	3.2	194.0
Schoharie	2,910.6	167.8	1,644.7	429.2	5,152.3
Suffolk	943.1	.0	.0	829.8	1,772.9
Sullivan	3,445.0	840.9	5,451.2	812.8	10,549.9
Ulster	5,163.5	15.5	6,630.7	312.2	12,121.9
Westchester/Rockland	93.4	.0	66.2	115.2	274.8
Catskill-Lower Hudson	17,424.6	1,721.8	16,853.3	4,156.6	40,156.3
Total, all units	97,142.7	52,360.1	96,668.8	22,440.0	268,611.6

[a] Multi-county groupings are used for counties with too few forested field plots or with other sampling anomalies. This is done when more detailed county-level data are presented in order to minimize sampling errors.

Table 3.--Net aboveground tree biomass of all live hardwood trees on commercial forest land, by county, geographic unit, and selected species, New York, 1980

County[a] and geographic unit	Oaks	Hard Maples	Soft Maples	Other Hardwoods	Total Hardwoods
	thousand green tons				
Cayuga/Seneca	746.0	2,705.9	2,691.3	5,968.6	12,111.8
Erie	486.4	3,343.8	1,683.7	6,452.7	11,966.6
Genesee	337.2	539.6	894.4	3,819.8	5,591.0
Livingston	1,780.9	1,437.0	819.3	2,949.1	6,986.3
Madison	296.7	2,802.3	486.4	5,120.7	8,706.1
Monroe	780.2	526.1	458.6	2,444.5	4,209.4
Niagara	735.9	161.2	22.8	1,903.5	2,823.4
Onondaga	26.6	1,482.0	2,573.8	4,865.4	8,947.8
Ontario	2,408.6	1,074.5	429.6	4301.7	8,214.4
Orleans	166.2	132.5	453.5	3,422.2	4,174.4
Oswego	181.8	2,811.2	8,782.0	9,832.4	21,607.4
Wayne	65.1	1,394.4	1,126.5	3,803.3	6,389.3
Wyoming	221.1	2,527.0	510.0	5,376.1	8,634.2
Yates	1,727.0	371.7	294.1	1,224.9	3,617.7
Lake Plain	9,959.7	21,309.2	21,226.0	61,484.9	113,979.8
Allegany	4,672.8	6,184.0	4,551.0	11,403.5	26,811.3
Cattaraugus	4,180.2	8,378.3	3,476.7	13,702.2	29,737.4
Chautauqua	896.9	6,794.0	2,928.1	11,463.0	22,082.0
Steuben	5,212.5	7,509.5	2,661.2	16,839.2	32,222.4
Southwest Highlands	14,962.4	28,865.8	13,617.0	53,407.9	110,853.1
Broome	4,274.5	2,437.6	3,863.5	5,920.6	16,496.2
Chemung	3,122.2	890.1	1,248.3	3,359.7	8,620.3
Chenango	2,699.0	4,437.8	4,205.4	7,279.1	18,621.3
Cortland	159.4	4,080.3	1,240.6	4,654.9	10,135.2
Delaware	3,633.4	11,988.5	15,664.3	18,450.9	49,737.1
Otsego	2,408.4	3,698.7	4,622.6	8,186.0	18,915.7
Schuyler	1,838.3	1,526.1	1,102.9	3,166.5	7,633.8
Tioga	2,616.4	1,140.7	3,464.2	4,039.1	11,260.4
Tompkins	1,955.1	1,919.8	1,118.6	6,471.2	11,464.7
South-central Highlands	22,706.7	32,119.6	36,530.4	61,528.0	152,884.7
Clinton	1,430.8	6,228.9	4,832.6	14,969.4	27,461.7
Franklin	109.9	10,629.3	11,482.5	18,763.1	40,984.8
Jefferson	677.5	3,560.6	1,138.4	6,256.0	11,632.5
St. Lawrence	723.7	9,889.9	14,131.5	32,307.6	57,052.7
St. Lawrence-N. Adirondack	2,941.9	30,308.7	31,585.0	72,296.1	137,131.7
Fulton	238.3	1,360.8	1,698.3	4,725.7	8,023.1
Herkimer	97.5	3,703.2	4,482.4	9,267.8	17,550.9
Lewis	206.6	5,946.4	7,971.4	16,684.5	30,808.9
Oneida	872.7	5,078.8	6,055.0	14,095.0	26,101.5
Western Adirondack	1,415.1	16,089.2	20,207.1	44,773.0	82,484.4

Table 3.--Net aboveground tree biomass of all live hardwood trees on commercial forest land, by county, geographic unit, and selected species, New York, 1980

County[a] and geographic unit	Oaks	Hard Maples	Soft Maples	Other Hardwoods	Total Hardwoods
	thousand green tons				
Essex	3,261.2	8,540.1	2,336.8	17,515.3	31,653.4
Hamilton	.0	4,739.2	2,108.5	12,337.2	19,184.9
Warren	2,493.9	4,193.2	1,823.2	7,660.5	16,170.8
Eastern Adirondack	5,755.1	17,472.5	6,268.5	37,513.0	67,009.1
Albany	373.7	2,041.7	234.5	2,562.9	5,212.8
Columbia	5,764.3	1,349.6	1,233.2	5,759.6	14,106.7
Montgomery	359.6	457.3	205.6	1,344.8	2,367.3
Rensselaer	3,655.9	2,764.1	4,453.5	4,746.6	15,620.1
Saratoga	4,796.7	2,382.7	4,002.4	9,084.4	20,266.2
Schenectady	856.5	678.0	389.6	2,303.7	4,227.8
Washington	3,006.0	2,492.0	1,340.2	7,358.5	14,196.7
Capitol District	18,812.7	12,165.4	11,859.0	33,160.5	75,997.6
Dutchess	7,210.5	2,375.1	2,856.2	9,276.8	21,718.6
Greene	2,715.0	5,182.5	1,608.1	6,179.2	15,684.8
Orange	6,670.9	1,040.3	1,711.9	6,973.2	16,396.3
Putnam	3,357.7	354.5	1,178.0	2,127.1	7,017.3
Schoharie	3,363.5	3,885.2	1,681.6	5,754.2	14,684.5
Suffolk	2,940.8	50.0	53.0	474.4	3,518.2
Sullivan	11,918.3	4,848.4	8,758.0	11,602.3	37,127.0
Ulster	9,993.8	4,665.9	4,842.8	11,020.1	30,522.6
Westchester/Rockland	2,633.2	337.9	909.1	4,869.3	8,749.5
Catskill-Lower Hudson	50,803.7	22,739.8	23,598.7	58,276.6	155,418.8
Total, all units	127,357.3	181,070.2	164,891.7	422,440.0	895,759.2

[a] Multi-county groupings are used for counties with too few forested field plots or with other sampling anomalies. This is done when more detailed county-level data are presented in order to minimize sampling errors.

Table 4.--Commercial forest land area and net aboveground tree biomass of all live trees per acre of commercial forest land, by county and geographic unit, New York, 1980

County[a] and geographic unit	Commercial forest land	Total aboveground biomass per acre
	-- thousand acres --	-- green tons/acre --
Cayuga/Seneca	198.6	65.9
Erie	229.6	71.2
Genesee	94.1	61.2
Livingston	120.1	72.8
Madison	196.2	60.2
Monroe	96.1	48.6
Niagara	65.1	43.4
Onondaga	199.9	49.3
Ontario	142.7	63.0
Orleans	74.2	57.9
Oswego	416.9	68.0
Wayne	101.9	66.0
Wyoming	145.0	73.7
Yates	84.0	55.8
Lake Plain	2,164.4	63.2
Allegany	421.5	72.1
Cattaraugus	470.3	71.3
Chautauqua	362.6	73.0
Steuben	478.1	77.2
Southwest Highlands	1,732.5	73.5
Broome	279.4	67.2
Chemung	158.0	72.1
Chenango	340.3	81.9
Cortland	158.1	72.6
Delaware	624.3	86.8
Otsego	369.5	69.9
Schuyler	122.2	77.5
Tioga	193.6	74.7
Tompkins	171.5	77.3
South-central Highlands	2,416.9	77.3
Clinton	465.1	80.5
Franklin	655.1	85.3
Jefferson	359.6	42.8
St. Lawrence	1,118.6	67.8
St. Lawrence-N. Adirondack	2,598.4	71.0
Fulton	179.4	69.1
Herkimer	388.1	64.4
Lewis	574.1	67.3
Oneida	413.2	81.0
Western Adirondack	1,554.8	70.4

Table 4.--Commercial forest land area and net aboveground tree biomass of all live trees per acre of commercial forest land, by county and geographic unit, New York, 1980

County[a] and geographic unit	Commercial forest land	Total aboveground biomass per acre
	-- thousand acres --	-- green tons/acre --
Essex	557.9	92.5
Hamilton	373.8	77.1
Warren	336.3	100.2
Eastern Adirondack	1,268.0	90.0
Albany	162.2	58.9
Columbia	216.9	86.5
Montgomery	81.3	56.8
Rensselaer	253.9	86.6
Saratoga	356.2	86.0
Schenectady	66.7	73.2
Washington	257.0	75.3
Capitol District	1,394.8	78.7
Dutchess	298.6	78.4
Greene	252.3	86.1
Orange	259.0	72.5
Putnam	89.9	80.2
Schoharie	256.7	77.3
Suffolk	101.0	52.4
Sullivan	463.9	102.8
Ulster	428.9	99.4
Westchester/Rockland	125.7	71.8
Catskill-Lower Hudson	2,276.0	85.9
Total, all units	15,405.8	75.6

[a] Multi-county groupings are used for counties with too few forested field plots or with other sampling anomalies. This is done when more detailed county-level data are presented in order to minimize sampling errors.

Table 5.--Net aboveground tree biomass of all live trees on commercial forest land, by county, geographic unit, and source, New York, 1980

County[a] and geographic unit	Growing stock			Cull trees[d]	Other sources[e]	All sources
	stem[b]	tops[c]	total			
	thousand green tons					
Cayuga/Seneca	7,599.3	2,307.9	9,907.2	1,046.7	2,141.2	13,095.1
Erie	9,107.2	2,979.1	12,086.3	1,296.8	2,969.3	16,352.4
Genesee	2,506.6	858.5	3,365.1	270.2	2,124.6	5,759.9
Livingston	4,748.0	1,502.0	6,250.0	1,099.8	1,390.0	8,739.8
Madison	6,134.8	2,215.0	8,349.8	1,200.7	2,255.2	11,805.7
Monroe	2,808.8	904.8	3,713.6	286.7	668.1	4,668.4
Niagara	1,640.1	491.6	2,131.7	209.7	482.0	2,823.4
Onondaga	5,080.4	1,674.7	6,755.1	1,240.2	1,864.5	9,859.8
Ontario	5,377.1	1,647.4	7,024.5	271.1	1,689.4	8,985.0
Orleans	2,359.5	720.7	3,080.2	282.9	930.2	4,293.3
Oswego	15,050.3	5,269.6	20,319.9	3,024.8	4,995.9	28,340.6
Wayne	3,929.0	1,263.5	5,192.5	373.0	1,157.0	6,722.5
Wyoming	5,642.2	2,019.6	7,661.8	860.8	2,158.0	10,680.6
Yates	2,473.5	835.6	3,309.1	619.1	763.2	4,691.4
Lake Plain	74,456.8	24,690.0	99,146.8	12,082.5	25,588.6	136,817.9
Allegany	17,279.3	5,603.5	22,882.8	2,274.2	5,240.3	30,397.3
Cattaraugus	20,257.1	6,290.7	26,547.8	2,483.5	4,478.9	33,510.2
Chautauqua	15,585.9	4,923.1	20,509.0	2,144.2	3,807.8	26,461.0
Steuben	21,686.1	6,769.1	28,455.2	2,883.9	5,563.4	36,902.5
Southwest Highlands	74,808.4	23,586.4	98,394.8	9,785.8	19,090.4	127,271.0
Broome	10,978.7	3,628.3	14,607.0	1,375.9	2,786.5	18,769.4
Chemung	7,315.9	2,247.4	9,563.3	326.6	1,508.8	11,398.7
Chenango	15,399.4	5,155.9	20,555.3	2,936.5	4,368.5	27,860.3
Cortland	6,571.4	2,056.8	8,628.2	1,102.4	1,753.3	11,483.9
Delaware	31,311.7	9,708.5	41,020.2	5,835.1	7,332.8	54,188.1
Otsego	14,222.8	4,817.3	19,040.1	2,954.9	3,834.3	25,829.3
Schuyler	5,465.6	1,673.7	7,139.3	519.1	1,816.2	9,474.6
Tioga	8,525.1	2,713.1	11,238.2	998.0	2,217.9	14,454.1
Tompkins	8,350.0	2,603.7	10,953.7	1,001.2	1,296.2	13,251.1
South-central Highlands	108,140.6	34,604.7	142,745.3	17,049.7	26,914.5	186,709.5
Clinton	19,502.7	6,565.0	26,067.7	3,159.8	8,230.7	37,458.2
Franklin	30,862.4	11,062.9	41,925.3	4,968.6	8,968.4	55,862.3
Jefferson	8,275.1	2,642.8	10,917.9	1,550.5	2,906.7	15,375.1
St. Lawrence	36,338.3	13,409.9	49,748.2	9,947.9	16,181.1	75,877.2
St. Lawrence-N. Adirondack	94,978.5	33,680.6	128,659.1	19,626.8	36,286.9	184,572.8
Fulton	5,991.8	2,313.7	8,305.5	1,941.3	2,145.1	12,391.9
Herkimer	12,587.8	4,910.7	17,498.5	3,665.4	3,838.5	25,002.4
Lewis	19,771.4	6,780.8	26,552.2	5,341.6	6,742.7	38,636.5
Oneida	18,634.3	5,594.4	24,228.7	4,210.2	5,036.5	33,475.4
Western Adirondack	56,985.3	19,599.6	76,584.9	15,158.5	17,762.8	109,506.2

Table 5.--Net aboveground tree biomass of all live trees on commercial forest land, by county, geographic unit, and source, New York, 1980

County[a] and geographic unit	Growing stock			Cull trees[d]	Other sources[e]	All sources
	stem[b]	tops[c]	total			
	thousand green tons					
Essex	31,537.2	9,775.2	41,312.4	2,701.0	7,600.6	51,614.0
Hamilton	14,036.6	5,581.6	19,618.2	3,165.3	6,028.9	28,812.4
Warren	19,554.4	5,766.6	25,321.0	3,275.5	5,117.0	33,713.5
Eastern Adirondack	65,128.2	21,123.4	86,251.6	9,141.8	18,746.5	114,139.9
Albany	5,204.1	1,524.3	6,728.4	1,104.7	1,716.6	9,549.7
Columbia	11,573.1	3,578.2	15,151.3	1,398.3	2,211.8	18,761.4
Montgomery	2,836.2	859.1	3,695.3	520.0	401.3	4,616.6
Rensselaer	13,221.6	4,194.1	17,415.7	1,914.6	2,659.0	21,989.3
Saratoga	17,190.9	5,287.5	22,478.4	3,214.1	4,930.5	30,623.0
Schenectady	2,589.7	859.1	3,448.8	620.2	810.3	4,879.3
Washington	11,010.7	3,645.3	14,656.0	1,864.9	2,838.2	19,359.1
Capitol District	63,626.3	19,947.6	83,573.9	10,636.8	15,567.7	109,778.4
Dutchess	14,097.4	4,332.9	18,430.3	1,581.0	3,384.3	23,395.6
Greene	12,494.0	3,914.1	16,408.1	2,029.7	3,290.2	21,728.0
Orange	11,845.2	3,521.8	15,367.0	1,010.2	2,389.4	18,766.6
Putnam	4,781.5	1,394.5	6,176.0	377.8	657.5	7,211.3
Schoharie	10,549.0	3,482.8	14,031.8	2,723.0	3,082.0	19,836.8
Suffolk	2,962.2	986.4	3,948.6	394.7	947.8	5,291.1
Sullivan	29,245.3	8,912.5	38,157.8	3,170.5	6,348.6	47,676.9
Ulster	27,247.3	7,977.9	35,225.2	2,883.4	4,535.9	42,644.5
Westchester/Rockland	5,641.5	1,656.7	7,298.2	442.9	1,283.2	9,024.3
Catskill-Lower Hudson	118,863.4	36,179.6	155,043.0	14,613.2	25,918.9	195,575.1
Total, all units	656,987.5	213,411.9	870,399.4	108,095.1	185,876.3	1,164,370.8

[a] Multi-county groupings are used for counties with too few forested field plots or with other sampling anomalies. This is done when more detailed county-level data are presented in order to minimize sampling errors.
[b] Bole portion of trees 5.0 inches dbh and larger.
[c] Stem and branches above a 4.0-inch top diameter outside bark.
[d] Includes entire tree aboveground of rough and rotten trees and noncommercial tree species.
[e] Includes stumps of all live trees 5.0 inches dbh and larger and entire tree aboveground of all trees between 1.0 inches and 5.0 inches dbh.

Table 6.--Net green weight[a] of industrial roundwood harvested[b] from commercial forest land, by region, species group, and product group, New York, 1979

Region and species group	Sawlogs	Pulpwood	Other products[c]	All products
	thousand green tons			
Southwestern region:				
Softwoods	231.8	28.7	13.4	273.9
Hardwoods	1,151.9	104.0	51.3	1,307.2
Total	1,383.7	132.7	64.7	1,581.1
Northern region:				
Softwoods	312.7	220.5	9.2	542.4
Hardwoods	527.5	1,175.2	59.3	1,762.0
Total	840.2	1,395.7	68.5	2,304.4
Southeastern region:				
Softwoods	220.3	64.7	2.9	287.9
Hardwoods	422.5	159.5	20.9	602.9
Total	642.8	224.2	23.8	890.8
All regions:				
Softwoods	764.8	313.9	25.5	1,104.2
Hardwoods	2,101.9	1,438.7	131.5	3,672.1
Total	2,866.7	1,752.6	157.0	4,776.3

[a] Softwoods were assumed to weigh 0.0274 green tons per cubic foot and hardwoods 0.0328 green tons per cubic foot.

[b] Based on a complete canvass of wood manufacturing plants in New York during 1979 (Nevel and others 1982). Does not include fuelwood or other removals that were not manufactured into industrial products.

[c] Includes cabin and veneer logs, piling, and stock for bats, bowls, handles, ladders, shingles, and miscellaneous dimension.

Table 7.--Net aboveground tree biomass of all live trees on commercial forest land, by stand area class and species group, New York, 1980

Stand area class	Softwoods	Hardwoods	All species
	thousand green tons		
1 - 49 acres	151,959.7	424,940.5	576,900.2
50 - 99 acres	69,696.0	224,829.2	294,525.2
100 - 499 acres	37,604.2	160,731.9	198,336.1
500+ acres	9,351.7	85,257.6	94,609.3
All classes	268,611.6	895,759.2	1,164,370.8

Table 8.--Area owned by private commercial forest land owners and area available for harvesting, by size of ownership, New York, 1980

Ownership size class	Total commercial forest land area	Available area	Proportion available
	thousand acres		percent
Forest Industry	1,034.7	941.9	91
1 - 49 acres	4,572.5	2,552.0	56
50 - 499 acres	6,670.7	4,774.1	72
500+ acres	2,148.9	1,632.0	76
All classes	14,426.8	9,900.0	69

Wharton, Eric H. Identifying aboveground wood fiber potentials in New York State. Resour. Bull. NE-82. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1984. 25 p.

A statistical analytical report on the biomass resources of New York. The study was conducted in conjunction with the third forest survey of New York by the USDA Forest Service. Statistical findings are based on new 10-point variable radius plots, a canvass of wood manufacturers, timber utilization plots, and a mail canvass of private, commercial forest-land owners; all conducted in 1978 and 1979. Presents total aboveground biomass supplies, the use of biomass in the state for forest products, and sources of wood from residues and standing trees that can be used to improve wood fiber recovery.

ODC 905.1(747)

Keywords: Forest survey, biomass, wood residues, forest-land ownership, availability, counties.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1984—505-028/541

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E-83

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Maine Timber Industries—A Periodic Assessment of Timber Output

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CLEMSON UNIVERSITY
JUL 23 1985
PUBLIC DOCUMENTS

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Manuscript received for publication 13 June 1984.

Abstract

This periodic evaluation of statewide industrial timber output is based on a survey of the primary wood manufacturing plants located in Maine in 1981. It contains statistics on industrial timber harvest and plant wood receipts and on the production and disposition of the manufacturing residues for the year. The 438.7 million ft^3 (12.4 million m^3) of industrial roundwood produced in 1981 represented a 12 percent increase in production since 1970 when similar information was reported in detail. The production of sawlogs, pulpwood, and many other products increased during the period. Other trends in industrial product output and the use of manufacturing residue are presented along with 25 statistical tables.

Cover Photo

New technologies help Maine's timber products industry use more of the local resource; reduce the costs of labor, transportation, and handling; and increase efficiency in all segments of the industry. The pulpwood segment, devoted to supplying the state's huge pulp and paper industry, continues to use these new technologies wherever possible. The S. D. Warren Division of the Scott Paper Company at Westbrook, Maine, uses hydraulic truck dumpers to simultaneously unload manufacturing plant residue chips and whole-tree chips from four tractor trailers. The chips are then conveyed to the mill to make woodpulp and to fuel boilers to make steam for co-generation. The plant uses the steam from the co-generation process to generate electricity, to run electric- and steam-powered turbines, to heat the paper dryers and the plant, and to perform other pulp- and paper-making processes. Excess electricity is supplied to the local electric company **(Scott Paper Company).**

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Maine Timber Industries—A Periodic Assessment of Timber Output

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Highlights

The 1981 timber industry survey n Maine showed that since 1970:

- Total timber output of industrial roundwood increased 12 percent to nearly 439 million ft³ (12.4 million m³).
- Sawlog production rose about one-third to nearly 794 million board feet (3.6 million m³).
- The total number of operating sawmills rose from 235 to 368.
- Production of all forms of pulpwood increased. Total pulpwood production rose 23 percent, reaching nearly 4.3 million cords (10.2 million m³). Production from roundwood rose by only 6 percent; the output of manufacturing plant residues for pulpwood increased by 3.5 times.
- Nearly all (98 percent) of the total available wood manufacturing residues were used. The total used for fuel nearly tripled.

Background

The Forest Service of the U.S.)epartment of Agriculture conducts ontinuing forest surveys of all states o provide up-to-date information bout the timber and related re- ources of the Nation. In the 14-state egion served by the Northeastern 'orest Experiment Station, all states ave now been surveyed at least three mes. Maine has now been inventoed for the third time. The latest surey, conducted during 1980–82, included a timber-industry survey in 982 to determine the output of mber products and the volume and isposition of primary wood-product anufacturing residues in Maine for 981.

This report is a result of a 100 percent canvass of all primary wood-product manufacturers that were operating in Maine in 1981. Pulpwood production data were gathered as part of the Northeastern Station's annual survey of pulpwood producers in the Northeast. The State of Maine Department of Conservation, Forest Service Utilization and Marketing Division, assembled a list of all known primary wood-manufacturing firms in Maine for the canvass. The primary manufacturers were first contacted through a questionnaire mailed by the Maine Forest Service. Possible out-of-state consumers of Maine roundwood were also sent questionnaires. Any nonresponding manufacturer was sent an additional questionnaire or contacted by telephone by Maine Forest Service personnel.

This report deals mainly with statistics for 1981, the first year for a timber-industry canvass of this type. Statistics are given also for 1958 and 1970, the years of the previous surveys of the timber resources of Maine, which included information on the output of timber products supplied by the Maine Forest Service. Data for these years may not be representative for the various Maine timber industries covered in this report. When documented production statistics for individual timber products were available for previous or intervening years, they were included for comparison. Specific reference is made to statistics for other years from timber cut reports issued annually by the Maine Forest Service, and from other product and industry surveys conducted periodically throughout the 14-state region by the Northeastern Station.

Long-term production trends will be disclosed by repeated surveys in the future. Until a data base is built up over time, the reader is cautioned to use the current statistics prudently.

Timber Industry Trends—A Perspective

The harvesting and processing of timber in Maine have always been very important to the economic development of the state. With nearly 90 percent of the state's land covered with timber—more than any other state in the nation—these operations have provided income and timber products to the state's landowners and the nation's wood-using industries for more than 350 years—longer than any other major timber-producing state in the country. The following summary of the past literature is presented to put the current assessments in perspective.

Much of the importance of Maine's wood-using industries has been and will continue to be a result of the availability of timber-products from its forests. Nearly all of Maine's forests are classed as timberland,[1] and more of this forested land is owned by manufacturers of timber products than that in any other state in the country.

[1] Timberland, formerly known as commercial forest land, is forest land able to produce crops of more than 20 cubic feet per acre per year of industrial wood and not withdrawn from timber utilization. Definitions of industrial wood and other terms used in this report relating to the timber-using industries are in the appendix.

The removal of timber products from the coast of the region now known as Maine began in 1602 and progressed sporadically until 1623 during the region's period of active exploration and the beginnings of settlements. In 1605, white pine samples were taken to England. In 1607, the first ship built in the New World by English-speaking people was constructed in Maine. For more than 250 years, timber products would be harvested in Maine to build thousands more ships. By 1855, when the United States had more ships than any other country, over half had been built in Maine.

Shipbuilding and the lumber industry grew in Maine—using large volumes of white pine, oak, and tamarack. Ships made from Maine's timber products carried lumber, timbers, shingles, and barrel staves made from Maine's round timber products throughout the world (Fig. 1). Although it is believed that Maine's first sawmill was built as early as 1623 and a second in 1631, the first recorded date is for a water-powered sawmill in 1634. During the colonial period, Maine dominated the lumber industry, especially after the close of the French and Indian War and the removal of the Indian threat. Throughout the remainder of the 18th century, lumbering increased quickly with settlement of the state. By the first part of the 19th century, more lumber—mostly white pine—was shipped from Bangor than any other world port. Even though Maine's production of lumber continued to increase throughout the 19th century, the state's dominance as a lumber producer began to wane as lumbering moved westward. By 1839, Maine had lost its status as a lumber producer to New York. By 1850, most of Maine's readily available white pine had been cut, and in the 1860's iron began to replace wood for shipbuilding. Even so, Maine remained among the top five lumber-producing states until 1869 when dominance in the lumber industry shifted to the Lake States.

Figure 1.—The massive, six-masted "Wyoming" under sail. Built in 1909 at Bath, Maine, this was the largest wooden sailing vessel ever to carry cargo. **(Maine Maritime Museum).**

Along with the removal of timber products for lumber and other building materials, shipmasts, tannin, shingles, and cooperage, much timber harvesting and processing was associated with agriculture and the settlement of forested lands. Farming and land-clearing peaked between 1820 and 1880 when only three-fourths of Maine was forested. Much of the timber felled to clear land was piled and burned; the best was used for building and fencing materials, and large volumes of timber were harvested for fuel.

Until the early 1800's, timber harvesting and processing in the state were slow, tedious, and labor-intensive. Hand tools and animals were used in the woods and water-powered reciprocating saws in the mills. Through most of the 1800's and into the early 1900's, the timber and other wood-using industries still managed to flourish with the expansion and development of other industry and better transportation in the state. Hardwood timber products were used by the iron, charcoal, chemical, mining, and railroad industries. Quality hardwood timber was used for farm implements, furniture, and tools. With the depletion of white pine and the advent of railroads and better roads, spruce and other softwoods and hardwoods were utilized more. The production of hardwood lumber began to rise, and softwood timber was cut in large volumes and carried over the rails or floated down rivers to supply an expanding pulp and paper industry as well as the still-vigorous lumber industry.

The introduction of steam-driven equipment increased productivity in the woods and at the mills. Steam-powered log-haulers and trains hauled sawlogs, lumber, pulpwood, and woodpulp to market. Steam was used to power circular and gang-type saws and in pulping and paper-making processes. Maine's lumber production peaked in the early 1900's, eventually consuming less of the state's timber than the pulp and paper industry. In 1868, wood was used in Maine for the first time to make paper. By 1880, the pulp and paper industry was well established in Maine, and by 1890, the state led the nation in the production of wood-pulp—producing nearly one-fourth of the national output.

Except for the practices of cutting pulpwood into shorter lengths and peeling it in the woods, the harvesting technology, the major timber products, and the markets for the products remained much the same throughout the first quarter of the 20th century. The demand for Maine's timber products reached a low during the 1930's depression, and remained low until World War II. Demand for most of Maine's timber products peaked again after the return to peacetime. In 1946, lumber production in the state exceeded that in each of the five states—Indiana, Michigan, New York, Pennsylvania, and Wisconsin—that had produced more than Maine in 1869. Stability came to Maine's timber and timber products industry during the 1950's and 1960's with the return to normal economic conditions and the rising importance of pulp and paper to the industry. The manufacture of pulp and paper became Maine's largest single industry during the late 1950's and early 1960's—a period Coolidge (1963) referred to as "the paper age." The industry has maintained this status through the present. Except for minor fluctuations as a result of occasional periods of recession, Maine's production of woodpulp and lumber have continued to increase during the last quarter century, and most other segments of the state's timber products industry have grown or remained stable.

Since the 1950's, the number of most types of wood-using facilities has diminished, but the remaining mills have provided a solid industrial base through increased capacities and production and better use of the timber resource. This has been accomplished primarily by the timber industry's expansion of present facilities, its use of improved technology, and its adaptation to changes in timber resource, product demand, and transportation systems. The industry has adapted well to technological improvements in logging and manufacturing operations; novel and better transportation methods; stronger demand for new and traditional products; changing bark, pulpwood, and fuelwood markets; and concerns over energy and environment. The result has been greater efficiency, increased productivity and production, energy cost savings, and better use of the timber resource and of manufacturing residues for old and new products.

Examples of the Maine timber industry's recent adaptation to economic opportunities and new technology include the harvesting, hauling, and utilization of tree-length material by both pulpmills and sawmills, as well as other advances. Advanced pulping technology utilizes hardwoods, wood-manufacturig residue, and total tree chips. More dimension lumber is manufactured from spruce, fir, and hemlock. Sawmills employ computerized log breakdown and recovery machinery to sort and process large numbers of small-diameter logs. The sawmills use automated machines to sort and bundle lumber by width and grade. Lumber is treated to prevent staining. Waferboard is made from large, wood chips or "flakes" to compete with plywood and other particleboard construction products. Insect-infested spruce and fir timber is sprayed and salvaged. Trees are processed into chips in the woods. Short- and tree-length timber products are transported by barges and by specialized rail and trucking methods in place of the environmentally unacceptable log drives down rivers (Figs. 2 and 3).

A lumber-grading association was formed in Maine to gain markets previously supplied with Southern or Western lumber. Mills have installed debarkers, chippers, and wood-burning power plants to utilize chips and wood by-products for fiber and fuel. Some manufacturers have diversified their product line; merged with local, regional, or national enterprises; or entered new market areas. Maine now has several waferboard plants, four "stud mills" sawing stud material from tree-length logs, three of the Nation's four wooden-clothespin manufacturers, and the largest sawmill complex east of the Mississippi River. Industry has responded to fluctuating export demand, and exchange rates, and proximity to the Canadian border, by exporting steady volumes of sawlogs and veneer logs. The timber industry's adaptability to changing circumstances and its ability to capitalize on recent economic opportunities show its strength and its potential for continued growth and development.

The future of Maine's timber industry will continue to affect and be affected by the state's timber resource and economy. The major challenges to the state's largest industry are controlling costs, improving productivity, and more intensive management of smaller diameter softwoods to continue supplying timber products to Canada, the Northeast, and its own state when the spruce-budworm infestation is abated.

Irland[2] feels that the northeastern reconstituted-wood panel boom is ". . . one of the most vivid bursts of new mill investment in the postwar history . . . of the national wood-using industry and that the region is undergoing a . . . resurgence as a major forest products region. . . ." The reconstituted-wood panel industry, which

[2] Irland, Lloyd C. An update on reconstituted wood panels in New England. Unpublished paper presented at the Northeast fall section meeting of the Forest Products Research Society, West Lebanon, NH, Nov. 3, 1982.

Figure 2.—Water still plays a part in transporting roundwood in Maine, although the river drives are gone. Here, red spruce sawlogs and pulpwood from islands in Penobscot Bay are sorted and transferred from a barge to modern trucks at St. George. **(Philip Conkling).**

includes the waferboard segment, can make flexible use of Maine's large, under-utilized timber resource of aspen, dead and dying fir and spruce, and low-grade hardwoods (Irland 1981).

The outlook for the timber industry of Maine is, for the most part, an encouraging one. The industry continues to grow in its major segments, remains stable or exhibits growth in most others, and is currently exhibiting its traditional adaptability and resourcefulness in using the available timber resource. Few of the industry's segments should show decline over the next decade if they remain aggressive and quick to adapt to some difficult challenges that lie ahead. The various segments must reckon with the spruce-fir supply and demand,[3] the effect of the budworm, the diminishing availability of yellow-birch veneer-quality logs, and develop markets to utilize the abundant lower grade hardwood resource. In so doing, with an improved national economy, there should be sustained growth in the lumber and woodpulp segments, growth in the new wood-panel industry, and growth or stability in the veneer segment to supply face veneer to the panel and housing industries.

The turnery industry may be expected to grow as technology is developed to utilize the abundant, lower quality hardwood resource that is presently considered unsuitable for turned products. The wooden clothespin segment may be struggling to survive as a result of recent removal of the 1979 Federal trade barriers on imported clothespins.

[3] Readers interested in studying the spruce-fir supply and demand are encouraged to read the analysis by the Maine Forest Service listed at the end of this paper.

igure 3.—Recently, a record-breaking load of tree-length logs was hauled experimen-ılly on Great Northern Paper Company's Golden Road in northern Maine. The 79.5 ɔrds, weighing 187 tons, were hauled on a three-trailer truck, 160 feet long with 14 ‹les and 54 tires. Everyday, 24 hours a day, two-trailer trucks haul wood over this part the company's private road system designed for movement of these massive loads. **I. O. Bouchard Transport, Inc.).**

he Industrial Timber Harvest

Annually, Maine's forests supply ıe timber-using industry with more dustrial roundwood products than ıy of the 14 states in the Northeast. 1981, the industrial timber harvest mounted to 439 million ft³ (12.4 mil-ɔn m³) of roundwood products. Ac-ɔrding to the USDA Forest Service's ost recent timber-industry surveys, is volume exceeds the combined ınual timber harvest of the three ext largest timber-producing states —Kentucky, New York, and Pennsylvania—in the region.

Softwoods accounted for 71 percent of the timber harvested in Maine in 1981. Almost all of the timber was used for pulpwood and sawlogs. More than twice as much of the timber harvested went into pulpwood as went into sawlogs. Pulpwood made up two-thirds of the total harvest, 60 percent of the softwoods harvested, and over four-fifths of the hardwoods. Sawlogs accounted for nearly three-tenths of the total harvest, and most of the remaining softwood harvest. All other roundwood products, such as logs and bolts for cooperage, veneer, and turnstock, cabin logs, poles, posts, shingles, and stock for fencing, bowls, handles, and dowels, and numerous other miscellaneous items, made up only 5 percent of the timber harvest.

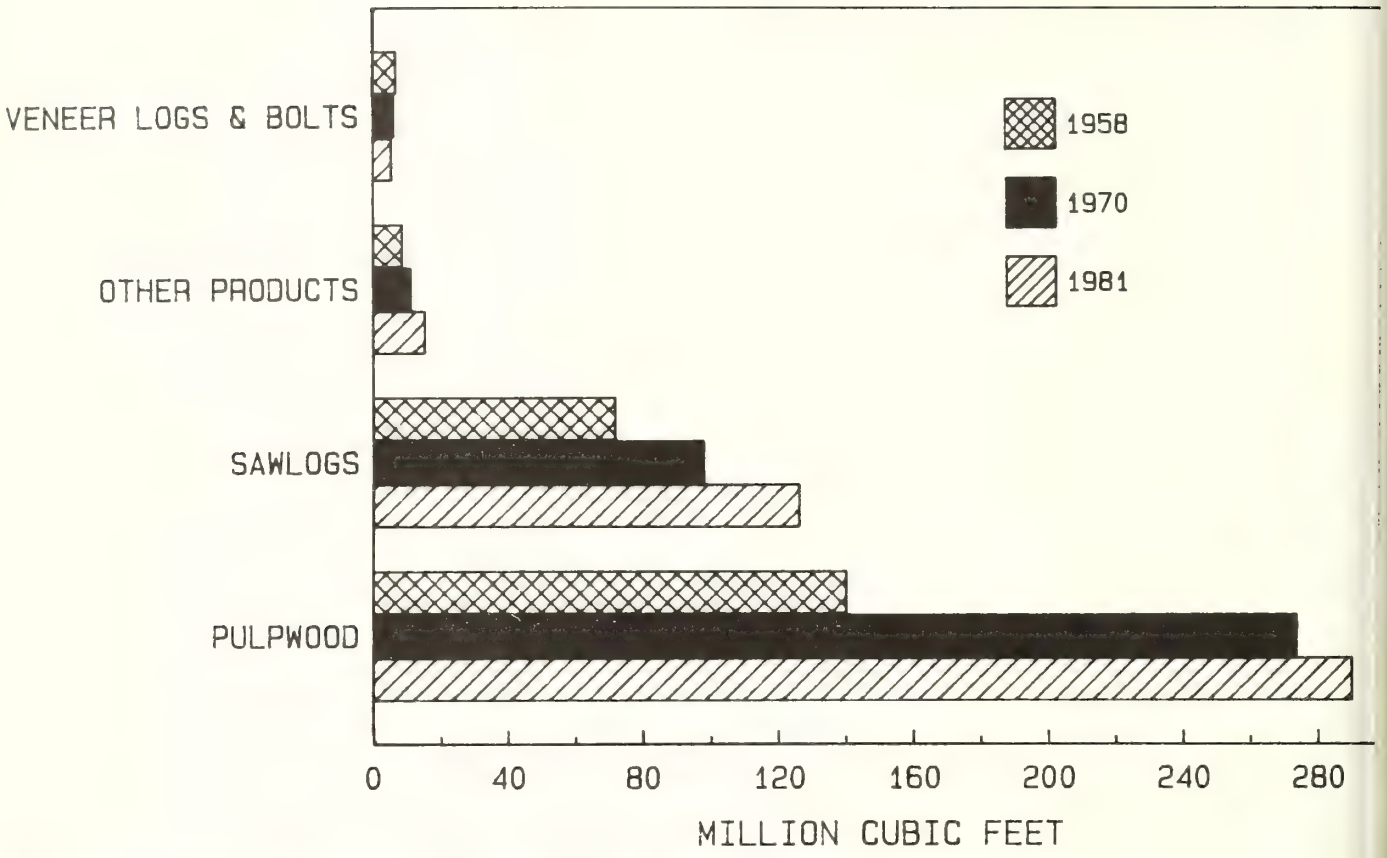


Figure 4.—Trend in industrial timber harvest in Maine for 1958, 1970, and 1981, by product use.

The industrial timber harvest in Maine has increased since the two earlier inventories of the state's forest resources in 1958 and 1970 (Fig. 4). The harvest increased by 161 million ft^3 (4.6 million m^3) since 1958 and by 48.6 million ft^3 (1.4 million m^3) since 1970. The two major timber products —pulpwood and sawlogs—were primarily responsible for the near doubling in harvested timber since 1958. Between 1958 and 1970, the timber harvest rose by 70 percent, and by 12 percent between 1970 and 1981. Slight declines in the cubic-foot volume of timber harvested for veneer logs continued to occur through both periods, while overall, about one-third more timber was cut during each period for veneer logs and the other products as a group. Between 1970 and 1981 this situation occurred because, although the timber cut for turnery and veneer logs and bolts registered a slight decline in cubic-foot volume during the period, the harvest for the remaining miscellaneous products, such as cabin logs, fence stock, poles, posts, shingles and dimension stock, more than doubled (Table 2).

Since 1951, when the Maine Forest Service began its current series of timber cut reports, the total timber harvest and the harvest of both hardwoods and softwoods for the major industrial products have increased substantially (Figs. 5–7 and Table 3). When our present survey of Maine's timber industry was conducted for 1981, the annual harvest of industrial timber products was the highest it had been for the state since reaching a low point during the 1930's depression. Between 1951 and 1981, the timber harvest had increased by 65 percent, or 172.3 million ft^3.

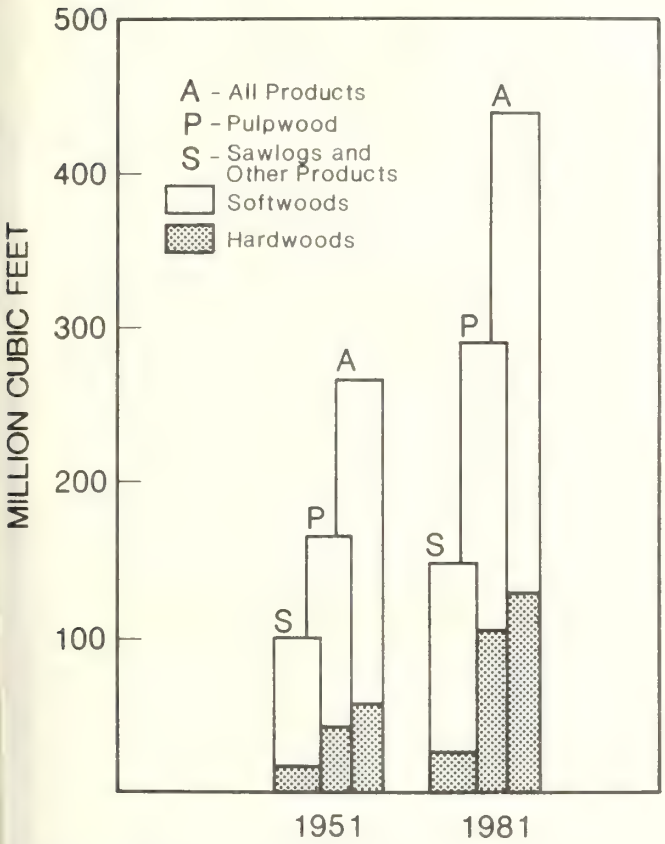


Figure 5.—Industrial timber harvest in Maine in 1951 and 1981, by major product use and species group.

The major demand on Maine's forests since 1951 has been to supply the woodpulp industry, and the trend in the state's industrial timber harvest has followed closely the pulpwood cut. For more than 30 years, softwoods have made up between 70 and 80 percent of the annual timber harvest—most of which was cut for pulpwood—and pulpwood accounts for between 60 and 70 percent of the annual harvest. Changes and fluctuations in Maine's harvest since 1951 have resulted primarily from the effects of economic and technological changes upon the woodpulp industry.

Following the depression, the annual timber harvest reached a 30-year peak in 1956 prior to a recession which began in 1957. The harvest remained low throughout 1957 and 1958 as pulpmills consumed the accumulated woodyard inventories and as the mills continued to use more chipped wood manufacturing residues to make woodpulp. Total timber harvest dropped severely again in 1975 as another deep recession reduced the demand for woodpulp, though the state's harvest of sawlogs and other products continued to increase. Advances in pulping technology, making the manufacture of woodpulp from hardwoods feasible and practical, greatly enhanced the use of Maine's hardwood resource between 1951 and 1981.

The volume of hardwoods harvested in the state rose by 133 percent, or 73.2 million ft³, since 1951. Nearly 64 million ft³ of this increased harvest was in the form of pulpwood, which exceeded the increase in softwood pulpwood by 3.6 million ft³ and dwarfed the net increase of 9.6 million ft³ of hardwoods for sawlogs and other products. Between 1958 and 1981, the hardwood harvest in Maine doubled, and both the softwood and the total harvest nearly doubled. Gains in the hardwood harvests between 1958 and 1970, and between 1970 and 1981, were due to increases in the harvests of hardwoods for pulpwood. The use of hardwoods for sawlogs and other products decreased during these periods after more than doubling between 1951 and 1958. The increased use of hardwoods has become more responsible for the increases in Maine's timber harvests. Hardwoods accounted for only about one-fourth of the gain in the state's total harvest between 1958 and 1970, but nearly half of the gain in the total between 1970 and 1981.

Between 1951 and 1981, the softwood harvest rose by nearly 100 million ft³, or 47 percent. The rise in the softwood harvest accounted for nearly 60 percent of the increase in the state's timber harvest for the period. Most of the rise in the softwood harvest was due to an overall increase in the softwood pulpwood harvest for the past 31 years. During the period, declines in the softwood harvest in 1958 and in 1975 were brought about by decreased demand for pulpwood during the recessions. As the woodpulp industry has continued to use more hardwoods and chipped residues, its preponderant use of softwoods has declined. The rise in the softwood harvest in recent years has been due increasingly more to increased harvest of softwoods for sawlogs and other products. Even so, the softwood portion of the total harvest has declined.

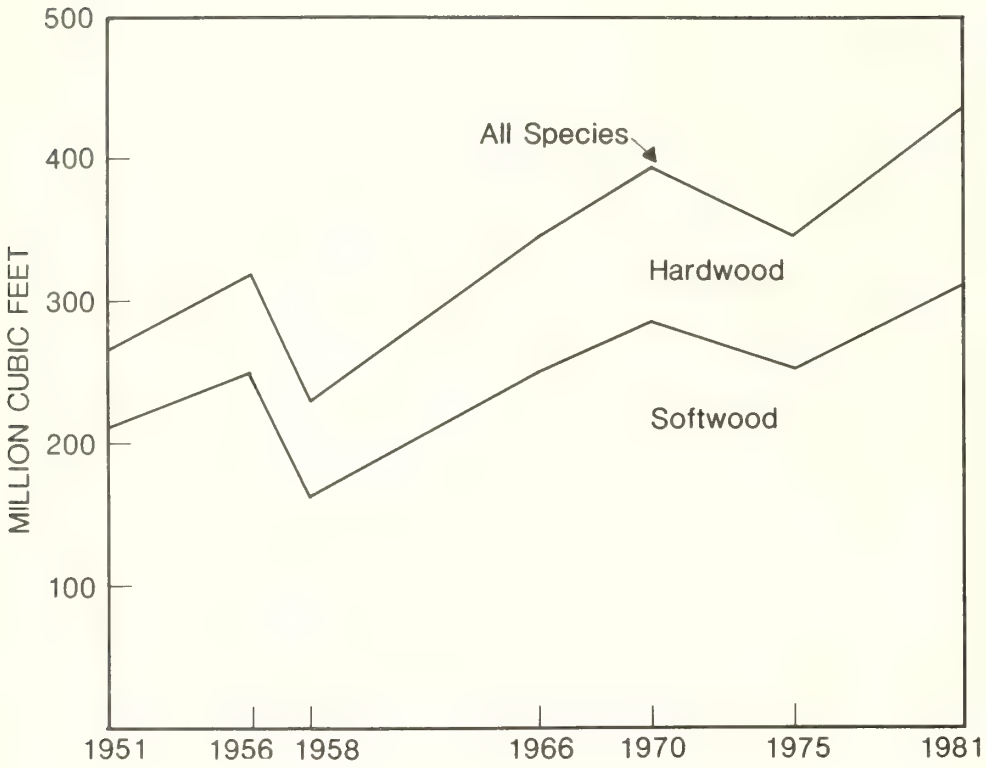
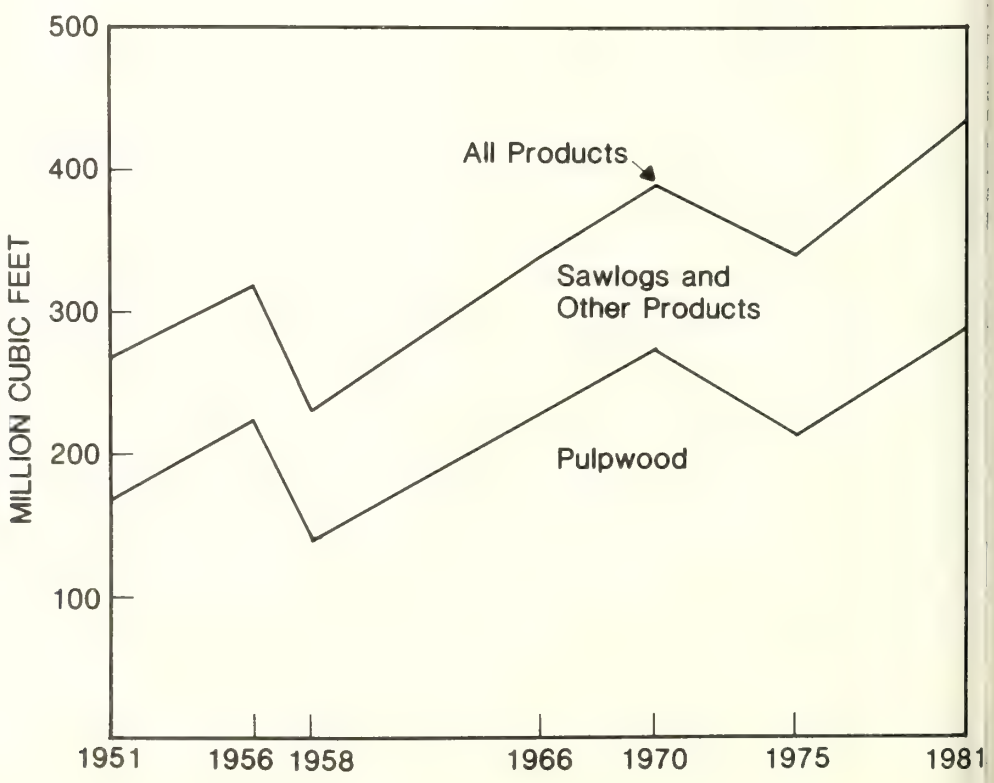


Figure 6.—Trend in industrial timber harvest in Maine for selected years, by species group.

Figure 7.—Trend in industrial timber harvest in Maine for selected years, by major product use.



From 1958 to 1970, when the harvest of softwood pulpwood peaked, pulpwood still accounted for most of the softwood harvest. Between 1970 and 1981, the total softwood harvest rose while the softwood pulpwood harvest declined. In 1951, softwoods accounted for 79 percent of Maine's timber harvest. Since 1958, the portion has been about 7 percent less.

The bulk of Maine's timber harvest has always been in the form of sawlogs and pulpwood. Although the harvest, and the product and species mix for these and the other products from Maine's forests have changed in recent years (Fig. 4 and Table 2), sawlogs and pulpwood accounted for the same portion of the timber harvest in 1981 as they did in 1970 (Fig. 5).

The harvests of both pulpwood and sawlogs rose during the 1958-70 period and the 1970-81 period. By 1981, the pulpwood harvest was more than twice that for 1958, and sawlog production had nearly doubled. Between 1958 and 1970, the pulpwood cut increased considerably more than sawlog production, both in terms of volume and percentage of the total harvest (Fig. 4). Since 1970, the sawlog harvest increased most in both respects (Figs. 4 and 8). Between 1958 and 1970, the production of roundwood pulpwood nearly doubled, increasing only slightly since 1970. The output of sawlogs rose by about a third during each period. In 1970, the pulpwood harvest was 274 million ft^3, nearly triple the sawlog volume, and accounted for 70 percent of the state's total harvest. By 1981, the pulpwood cut had risen to over 290 million ft^3, but represented 4 percent less of the total harvest that year. The sawlog cut rose by 28 million ft^3, or 4 percent more of the total harvest. The share of the total harvest for all other products remained unchanged at 5 percent for the period as the volume rose by 3.5 million ft^3.

Softwoods have always made up the bulk of the output of timber products in Maine. In 1951, softwoods accounted for about four-fifths of the harvest. Since 1958, the proportion of softwoods has remained around 73 percent while considerable change has occurred in the distribution of the softwoods and hardwoods among the various products. In recent years, proportionately less has been used for pulpwood and more for sawlogs, veneer logs, and other products, though the softwood harvests have increased for most years. As late as 1970, nearly 70 percent of the total softwood volume went into pulpwood; by 1981 the pulpwood portion had dropped to 60 percent.

During the 1970 to 1981 period, the output of softwood products in Maine increased 9 percent, from 284 to 310 million ft^3. This was almost entirely due to increased softwood sawlog production. The softwood sawlog harvest rose by over 40 percent or 34 million ft^3, to 117 million ft^3. In 1970, softwoods accounted for 84 percent of the sawlogs produced in the state; 11 years later, the softwood share had risen by 8 percent. About 1.2 million ft^3 of softwood veneer logs were cut in 1981, as opposed to almost none in 1970, and the output of miscellaneous softwood products rose 1.4 million ft^3. The production of softwood pulpwood dropped by about 10.3 million ft^3 to 187 million ft^3.

Twenty-one percent more hardwood was used in 1981 than in 1970—over 128 million ft^3, up by 22 million—resulting primarily from the 27 million ft^3 rise in the hardwood pulpwood harvest. In 1970, 72 percent of the hardwood harvest was in the form of pulpwood; by 1981 the pulpwood portion accounted for over 80 percent. Drops of nearly 6 million ft^3 and more than 2 million ft^3 occurred in hardwood sawlogs and veneer logs, respectively. Nearly 3.5 million ft^3 of hardwoods were cut for other products in 1981, as opposed to less than 50,000 ft^3 in 1970.

Two-thirds of both the total timber harvest and the roundwood pulpwood cut in Maine in 1981 was from four of the state's nine geographic units—Aroostook County, Piscataquis County, Somerset County, and the

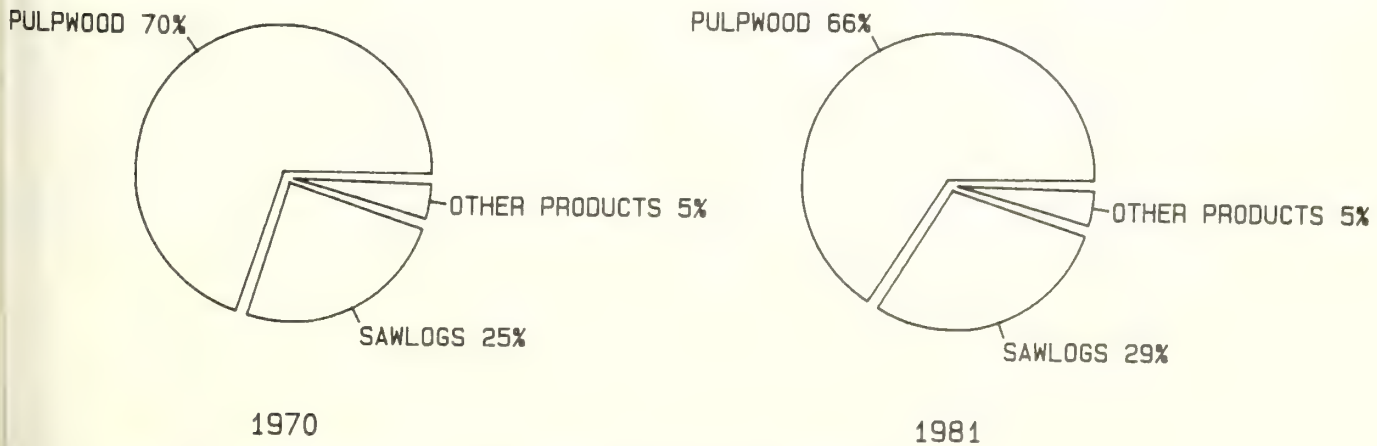


Figure 8.—Maine industrial timber harvest in 1970 and 1981, by product use, in percent.

Western Maine counties of Franklin and Oxford (Fig. 9). Each of these four units accounted for between 14 and 23 percent of the total output and about one-sixth of the pulpwood cut:

Geographic unit	*Total harvest*	*Pulpwood*	*Sawlogs*
		(Million ft³)	
Aroostook County	99.2	51.1	43.8
Capital Region	26.5	18.5	6.9
Casco Bay	22.7	9.9	11.8
Hancock County	13.0	6.7	5.8
Penobscot County	46.6	34.1	9.7
Piscataquis County	63.7	50.0	12.2
Somerset County	60.3	49.4	7.8
Washington County	36.7	23.9	10.7
Western Maine	70.0	46.9	17.9
Total	438.7	290.5	126.6

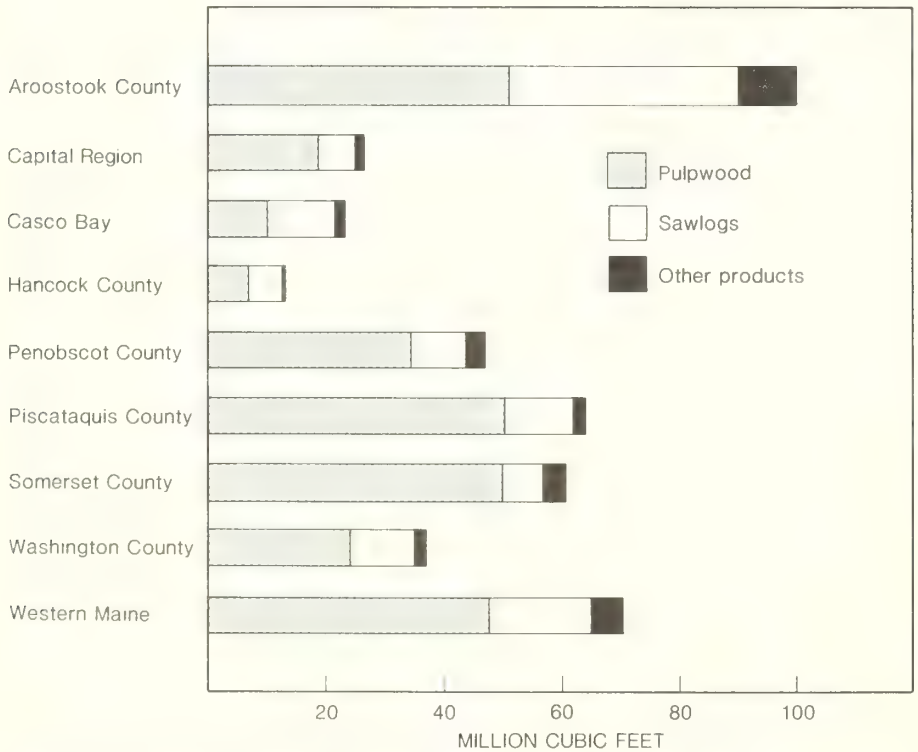


Figure 9.—Harvest of industrial timber in Maine in 1981, by geographic unit and major products.

In 1981, more of Maine's total timber products output and the output of all products came from Aroostook County than any other county or unit in state. Aroostook County supplied nearly one-fourth of Maine's timber products and over one-third of the state's sawlogs. Over half of the county's timber output was pulpwood and nearly half was sawlogs. The other units each produced less than one-seventh of the state's sawlogs. Although Western Maine was the next largest timber-harvesting unit, its total products output and its sawlog production were only 70 and 41 percent, respectively, as large as Aroostook's, and less than one-fifth of the state totals.

Aroostook and Western Maine also were responsible for more of the other products than any other county or unit—with each contributing more than 20 percent of the state's total—followed by Penobscot and Somerset counties. Somerset and Piscataquis were next in terms of the total harvest—each accounting for less than one-sixth of the state's total.

The Lumber and Sawlog Segment

Maine has been an important lumber-producing state since colonial days, supplying lumber, planking, and other sawn products for the construction of ships and buildings both here and abroad. Production was most likely limited to a few million board feet per year until Maine's population increased after the French and Indian War (Coolidge 1963). It was not until after the Revolutionary War and the War of 1812, however, that lumber production and the number of sawmills rose substantially with the continued settlement of the state. Coolidge states: "Lumbering during this period increased at a tremendous rate."

Production statistics for lumber and related products prior to the mid-1850's are either obscure or nonexistent. The earliest estimates (Coolidge 1963, Steer 1948) show the annual lumber production for the state increasing from about 539 million board feet in 1849 to about 785 million board feet by 1899. The lumber industry in Maine was at its height and continued to grow into the early 1900's.

Throughout this century, Maine has continued to be one of the leading lumber-producing states in the Northeast and in the Nation, despite major swings in annual lumber production and in number of sawmills (Fig. 10). Both lumber production and the number of sawmills in Maine peaked in 1909 at the end of the most productive period in the state and in the Northeast. Nearly 1,200 Maine sawmills produced over 1.1 billion board feet of lumber that year.

Both lumber production and the number of sawmills plunged over the next 25 years with the depletion of the easily accessible forests and the increased importance of pulpwood to the state's timber industry. As the Nation's economy collapsed between 1929 and 1933, Maine lumber production and sawmill numbers hit bottom. In 1932 and 1933, slightly more than 100 million board feet of lumber were produced annually by 150 to 200 operating sawmills. In a quarter of a century, the lumber industry in Maine, as in the rest of the Northeast, had almost ceased to exist. Lumber production had dropped by more than 90 percent, and the number of operating sawmills had dropped by more than 80 percent. These trends were representative of similar changes occurring throughout the Northeast as the softwood lumber industry, which had always been the mainstay of Maine's timber economy, continued shifting from the region to the South and Lake States.

As the national economy improved, lumber production and the number of sawmills operating in Maine increased. Stimulated by increased wartime demand for raw materials, the state's lumber production almost quadrupled from 1932 to 1942. It reached around 400 million board feet in 1942 and continued to rise throughout the balance of the 1940's. By the end of the decade, there were about 800 sawmills in Maine—nearly 8 times as many as in 1932 and 1933—producing nearly 500 million board feet of lumber.

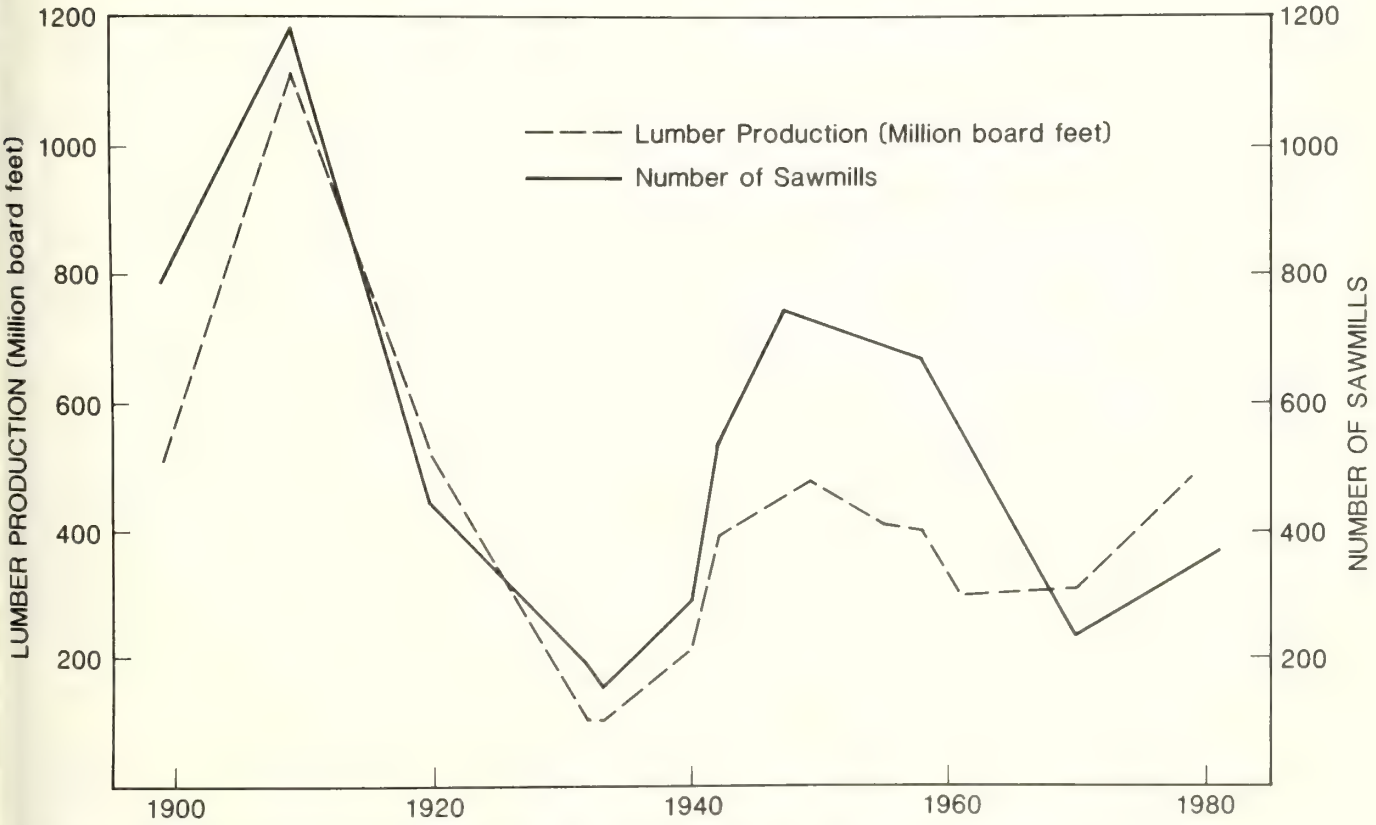


Figure 10.—Lumber production and number of sawmills in Maine for selected years between 1899 and 1981.

Housing demand had prompted increased lumber production and, by the 1950's, the circumstances that were responsible for the rapid changes of the previous three decades had disappeared. Annual production levels in Maine dropped slowly and remained around 400 million board feet throughout most of the 1950's; then stabilized around 300 million board feet during the 1960's representing the demand for lumber under relatively stable economic conditions. The levels of lumber production in Maine increased throughout the 1970's with the construction of more large-capacity mills and more efficient, specialized sawmills in the state manufacturing stud material from tree-length timber products. At the end of the 1970's, annual lumber production remained around 500 million board feet—about where it had been at the beginning of this century.

Annual lumber production in Maine has risen in recent years, and the number of sawmills operating in the state has increased also. There were 235 reported sawmills in 1970 and 368 in 1981, which included regular sawmills that cut logs 8 feet or more in length and bolter mills sawing logs less than 8 feet long. Some of the sawmills and bolter mills operated only intermittently; most were small and performed custom-sawing only. In 1981, there were 76 bolter mills as compared to 93 in 1970 and 131 in 1958. Many of the bolter mills saw logs into blanks for use by the turnery and furniture industries in addition to producing lumber for lobster-trap stock, pallet stock, box boards, and the like.

As in most other states in the Northeast and in most other regions of the country, most of Maine's lumber is produced by high-production mills making more than 1 million board feet annually. In 1981, there were 64 mills capable of producing more than 1 million board feet: 39 mills produced between 1 and 5 million board feet, 10 mills produced between 5 and 10 million board feet, and 15 mills made more than 10 million board feet of lumber (Table 5). Nearly 75 percent of the operating mills in Maine in 1981 sawed less than 1 million board feet. Nearly two-thirds of the high-production mills were located in three geographic units—Casco Bay, Penobscot County, and Western Maine. The Capitol Region and Casco Bay units had the largest number of custom and low-production mills and the most operating mills in the state. Most of the high-production mills sawed softwood logs almost exclusively for construction lumber products.

Maine's sawlog production in 1981 was 794 million board feet—a fourth more than in 1970 and nearly twice the 1958 sawlog harvest. In 1981, as in 1970, Aroostook County produced by far the most sawlogs and softwood sawlogs in the state (Table 7). Thirty-five percent of the state's sawlogs and its softwood sawlogs were harvested in the county. Nearly 257 million board feet of the 274 million board feet of the county's sawlogs were softwoods. The next largest sawlog-producing unit was Western Maine with under 15 percent of the softwood and total sawlogs. In 1981, as in 1970, Western Maine led the state in the output of hardwood sawlogs, followed closely by Aroostook County, at 30 and 28 percent, respectively. Since 1970, proportionately more of the state's sawlog cut and the production of both hardwood and softwood sawlogs has been in each of these two units.

Ninety-two percent of the total sawlog production in Maine in 1981 was from softwood trees (Fig. 11). As in 1970, three species groups—spruce, white pine, and balsam fir—accounted for most of the sawlog harvest. Both the volume of sawlogs cut from these three species and their combined share of the sawlog production has increased since 1970. Together these species accounted for 81 percent of Maine's 1981 sawlog output as compared to 64 percent in 1970. The percentage rise was due to a 12 percent increase in the spruce harvest and a 5 percent rise in balsam fir; the proportion of white pine to total harvest remained constant at 22 percent. In 1981, spruce made up 41 percent of all sawlogs and 45 percent of the softwood sawlogs cut in the state. Balsam fir accounted for 18 percent of all the sawlogs and one-fifth of the softwood sawlogs produced. The increased proportionate use of the spruces and balsam fir for sawlogs can be attributed most likely to the necessity of utilizing more of these two species groups as a result of spruce budworm damage, availability of these species, and the increased number of larger, more efficient sawmills in Maine.

In 1981, slightly more than one-fifth (160.5 million board feet) of Maine's sawlogs were shipped to manufacturers outside the state (Tables 7 and 18). Overall, the state was a net exporter of sawlogs—four times as many sawlogs were sent out of the state as were received from log processors outside Maine. Most of the interstate shipments went to and from Canada—nearly 119 million board feet of sawlogs went to Quebec and nearly 27 million board feet came from New Brunswick. Most of the sawlogs shipped to Canada and all of the sawlogs received from Canada were from softwoods. In 1981, Canadian mills received 151.2 million board feet of sawlogs from Maine, including 135.1 million board feet from softwoods. The volume of sawlogs sent to Canada has dropped considerably since the early 1970's when about 280 million board feet, which accounted for about half of Maine's softwood sawlog output and a fourth of its hardwood sawlogs, were shipped to Quebec. Since then, several Canadian mills near the border have closed, several others either moved to Maine or opened mills there, and milling capacity at Maine sawmills has increased by several hundred million board feet, contributing considerably to the decrease in Maine-to-Canada sawlog exports.[4]

[4]Readers interested in studying the effect of economic, political, and social pressure upon traditional patterns of wood flow between Maine and Canada are encouraged to read the literature by Aley, Coolidge, Everett, and Wallach listed in the references.

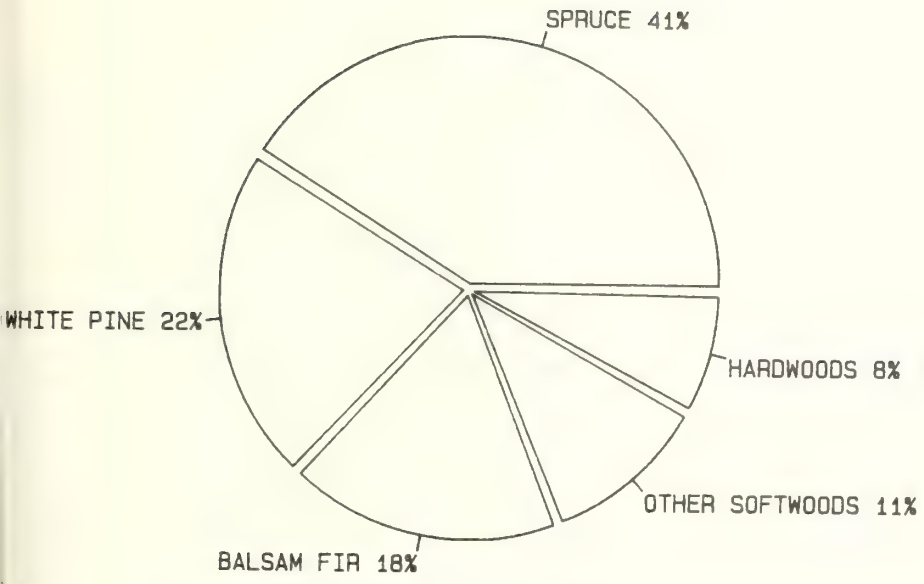


Figure 11.—Maine sawlog production in 1981, by species.

Within Maine, most of the regions' sawlog exports and imports were interregional transfers within the state rather than out-of-state shipments. Penobscot County was the only net importing unit and the largest importer of sawlogs—nearly three-fourths of the sawlogs it received in 1981 came from other units within Maine. Aroostook County was the largest exporting unit and the largest out-of-state exporter—nearly half of its sawlog production went out of Maine, mostly to Canada.

The Pulpwood Segment

Since 1868, when the first commercial woodpulp mill in Maine was started at Topsham, the state has always been an important pulpwood producer and user. The production of pulpwood soon became, and remains, the most important timber harvesting operation in Maine. By 1880, the pulp and paper industry was well established in Maine, and by 1890, the state led the Nation in the production of wood pulp—producing nearly one-fourth of the national output. The production of pulpwood surpassed the sawlog harvest in the early part of this century, and for most of the time since, the state's pulpwood requirement has exceeded the timber products output for all the other wood-using industries combined. Although the pulp and paper industry was shifting in the early part of this century to the Lake States and beyond, Maine led the Nation in pulpwood consumption for most of the period.

Maine's pulpwood consumption was surpassed by New York in 1910, and once again, in 1933, by Washington. In 1933, Maine used about 931,000 cords as compared to 1.1 million cords for Washington and 479,000 for New York. Since then the state's woodpulp production has fallen and risen over the years, and the number of pulpmills has declined. Fewer and fewer mills produced more and more woodpulp; and the woodpulp industry in Maine has continued to grow through increased use of hardwoods and wood-manufacturing residues, by increasing production capacity at existing mills, and through advances in pulping technology. Although Maine no longer leads the nation in pulpwood production, the annual production and consumption of pulpwood in Maine has increased generally over the years as the state has continued to lead the Northeast in pulpwood production and consumption. The state has maintained its status as one of the Nation's top producers and users of woodpulp. With established markets not subject to great fluctuations and large investments in facilities and timber lands, and as Maine's largest single industry, the pulp and paper industry has continued as a stable influence upon the state's timber products output and use.

Total pulpwood production, the roundwood harvest, and the use of chipped manufacturing residues in Maine have all grown in recent years (Fig. 12). This represents an incremental climb that began in 1976 following an economic slowdown in 1975. Since 1970, total pulpwood production in the state rose by 23 percent from about 3.5 million cords to nearly 4.3 million cords.

The production of pulpwood both from roundwood and from wood-manufacturing residues was an important part of Maine's woodpulp and other timber and timber-using industries in 1981. Although the volume of pulpwood cut in the state rose by only 6 percent from about 3.2 to nearly 3.4 million cords since 1970, it made up about four-fifths of the state's total pulpwood production and nearly two-thirds of its industrial timber harvest in 1981. Four-fifths of the increase of 786,000 cords since 1970 was from the production in 1981 of 3.5 times as much woodpulp from chipped residue.

Most of the state's roundwood pulpwood came from small diameter trees and the upper bole sections of trees after higher valued logs and bolts had been removed. Because of the large volume of timber in dense, small-diameter stands of trees, the harvesting of sawlogs and veneer logs would be unprofitable in many cases without the harvesting of pulpwood along with them.

The availability of wood-manufacturing residues for conversion into pulp chips resulted from the volume of other forms of roundwood processed at other Maine mills. The rise in the volume of pulp chips from these residues was from the increase in roundwood receipts at Maine's sawmills, the construction of stud mills in the state, and increased utilization of the residues generated at these plants. The stud mills have integrated the production of lumber and chipped residues to alter manufacturing processes to favor the production of one product, depending on market conditions. In 1981, during a period of poor lumber demand, much of the material at the stud mills was chipped rather than processed into low-quality lumber; and the sale of residue chips and chippable material from slabs and edgings was often critical to continued operations at many other sawmills. This and similar material, such as veneer cores and clippings, and trimmings from fence and piling manufacture, provided additional income to the state's processors of roundwood and more complete utilization of the resource.

In Maine, in 1981, fewer mills produced more woodpulp than in 1970. In 1970, the 17 woodpulp mills in the state consumed 3.7 million cords of pulpwood, both roundwood and chipped residue. In 1981, there were three fewer mills with receipts of 4.6 million cords—an increase of 24 percent resulting from increased capacities at the remaining mills.

During the last quarter century, technological advances in the pulping of wood have brought changes in the woodpulp industry and in the species composition of its raw material. Today, most woodpulp in Maine is still produced from softwoods, but the proportion of hardwoods, and the source of supply, have changed over the years. As recently as 1958, about 80 percent of the state's pulpwood came from softwood trees, and 2 percent came from chipped residue. By 1970, 72 percent was from softwoods and 8 percent was from chips (Fig. 12). In 1981, chipped residues accounted for a fifth of all the pulpwood produced in the state (Figs. 12 and 13). Softwood roundwood made up only 52 percent; and softwood from both roundwood and residue accounted for seven-tenths of the total pulpwood. Softwood material accounted for 90 percent of the chippable residue material produced in Maine for woodpulp in 1981.

Softwoods made up 64 percent of the roundwood pulpwood produced in Maine in 1981. Spruce and fir accounted for four-fifths of the softwoods and 52 percent of all species harvested. The remaining softwoods were about equally divided between two groups—pine, and hemlock and tamarack.

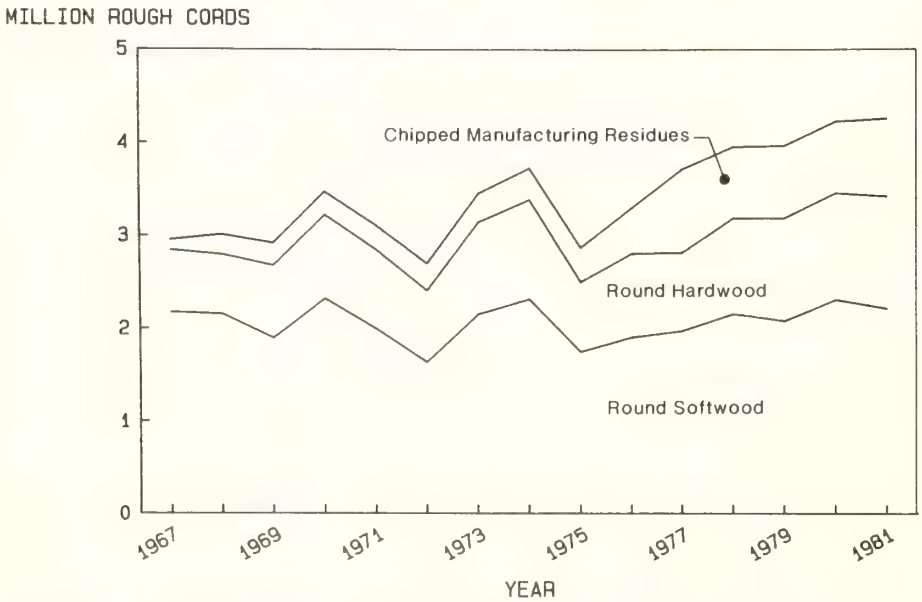


Figure 12.—Trends in pulpwood production in Maine for selected years, by source.

Since 1970, the pulpwood harvest has increased considerably in only three geographic units of the state, decreasing in all but one of the six other units:

Geographic unit	*1970*	*1981*	*Change*
	(Thousand cords)		*(Percent)*
Aroostook County	706.2	600.8	−15
Capital Region	216.2	217.8	1
Casco Bay	139.0	115.9	−17
Hancock County	85.8	79.4	− 7
Penobscot County	475.7	400.7	−16
Piscataquis County	448.2	588.0	31
Somerset County	370.7	581.0	57
Washington County	360.5	281.6	−22
Western Maine	418.6	552.4	32
Total	3,220.9	3,417.6	6

Roundwood pulpwood production increased most in Somerset County—by 210,300 cords, followed by Western Maine with an increase of 133,800 cords. Aroostook County—still the state's largest producer of pulpwood—registered the largest decrease in volume (105,400 cords).

In 1981, four regions—Aroostook County, Piscataquis County, Somerset County, and Western Maine—each produced more than 550 thousand cords, or more than 16 percent, of the state's roundwood pulpwood—totalling 2.3 million cords for the four units for two-thirds of the pulpwood harvest. In 1970, only Aroostook County produced more than 550 thousand cords. Most of the roundwood pulpwood in each of these four units was from softwoods; in Western Maine, the mix of hardwoods and softwoods was nearly equal.

Maine pulpmills consumed nearly all—97 percent—of the state's total pulpwood production from roundwood and chippable residues in 1981. Slightly more than half of the 144,200 cords of pulpwood shipped out-of-state went to mills in Canada (76,600 cords). The remainder was sent to other mills in New England. Only 11 percent—512,000 cords—of the 4.6 million cords of pulpwood received at Maine mills came from outside the state—all from neighboring states and Canada. More than half of the shipments into the state were from Canada (264,000 cords). Most of the remaining receipts at Maine mills came from New Hampshire. Maine mill receipts of pulpwood in 1981 exceeded the volume produced in the state by 367,800 cords, making Maine a net importer of pulpwood.

Most of the pulpwood, both roundwood and chippable residues, sent out of the state was from softwoods. About half of the imported roundwood was softwood; most of the residues received from out-of-state were from hardwood material.

Nearly 45 million cords of pulpwood have been harvested from Maine timberlands during the last 15 years (Table 20). Total pulpwood production in Maine increased by 48 percent from 2.9 million cords in 1967 to 4.3 million cords in 1981, averaging 3 million cords per year for the period. During the period, the production of softwood roundwood showed some fluctuation, but remained fairly constant around an average of 2.1 million cords per year, as the softwood roundwood portion of total production dropped from 74 percent to 52 percent. The rise in total pulpwood production was

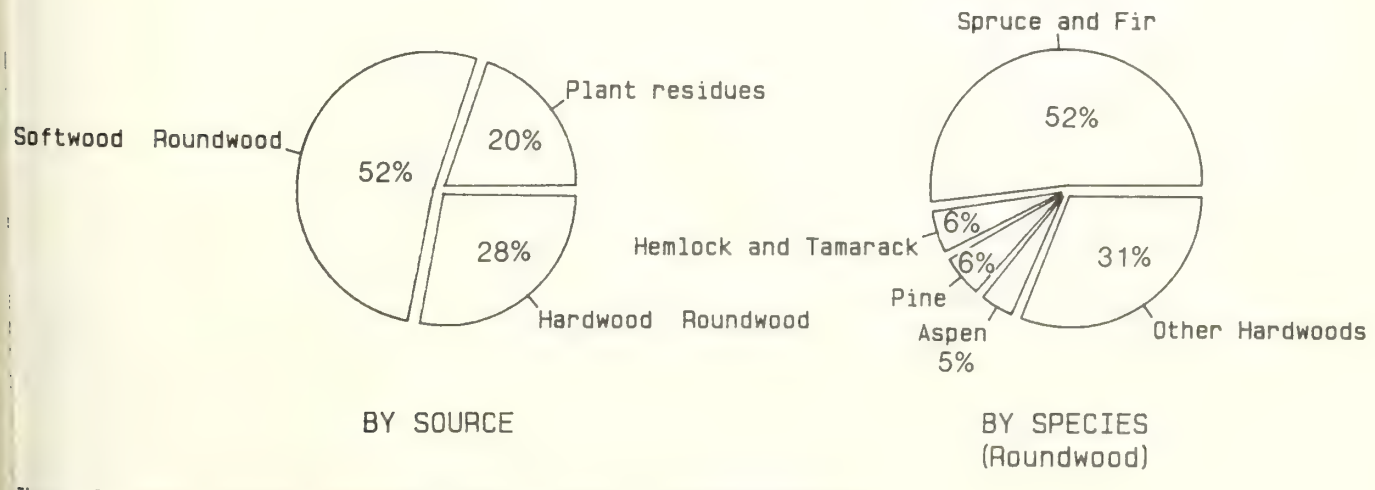


Figure 13.—Maine pulpwood production in 1981, in percent, by source and species.

mostly from increased hardwood roundwood harvest and increased use of manufacturing residues for pulp. During the last 15 years, Aroostook County has accounted for about one-fifth of the harvest for most of the period, dropping to 15 percent in 1975 and to 18 percent in 1981 during recessionary periods.

Averages for the three 5-year periods since 1967 clearly show the changes in Maine's pulpwood production in recent years:

	Chippable residue	*Softwood roundwood*	*Hardwood roundwood*	*Total pulpwood*
	(Thousand cords)			
1967–71	213	2,105	769	3,087
1972–76	360	1,943	902	3,205
1977–81	812	2,141	1,066	4,019

From the first 5-year period to the last, the volume of softwoods harvested remained constant while total pulpwood production rose by 30 percent, the hardwood roundwood portion rose by nearly 40 percent, and the production of residue for woodpulp nearly quadrupled. Compared to total pulpwood production, the portion represented by chipped residue rose from 7 to 20 percent, softwood roundwood dropped from 68 to 53 percent, and hardwood roundwood rose slightly from 25 to 27 percent.

Pulpwood production in Maine has risen over the years to meet increased pulping capacity at the state's mills to handle increased demand for woodpulp. Since 1967, the total daily pulping capacity of Maine's mills increased by 17 percent to 8,770 oven-dry tons as the number of mills dropped by 3 to 14. The existing mills, which have been operating for 50 years or more, have increased woodpulp production by expanding and improving their facilities and through more advanced, efficient technology to use the available resource.

In 1981, Maine's woodpulp mills used one mechanical and two chemical processes to make the pulp. The groundwood process comprised 38 percent of the total daily capacity while the two chemical processes—sulfate and sulfite—made up 55 and 7 percent, respectively. Continued changes in demand for the paper products and in the pulping processes to produce the paper should continue to increase the utilization of hardwoods and chipped residue.

Other Segments of the Timber Industry

While the bulk of the timber harvest in Maine has been used to make lumber and woodpulp, many other smaller, stable wood-using industries in the state make a multitude of other products. For many years, these industries have been active and important, and have added stability to the state's timber economy. The veneer and wood-turning segments have been the most influential of the smaller industries, utilizing more hardwoods than the state's lumber segment to produce some very unique and useful products. Of the 21.6 million ft^3, or remaining 5 percent, of the 1981 timber harvest not made into lumber or woodpulp, 12.8 million ft^3 were used by the veneer and woodturning industries. The balance of the harvest, mostly softwoods, was used by other manufacturers to make cabin logs, fence stock, shingle stock, posts, poles, cooperage logs, miscellaneous dimension, and numerous other items. Most of these industries have exacting requirements and are willing to pay a premium for certain species, sizes, and other physical attributes.

The Veneer Log and Bolt Segment

Since 1958, Maine's annual veneer log harvest has fluctuated between 37 and 51 million board feet. Until recently, the number of veneer mills has remained around 12, while the volume of logs and bolts received at these mills has ranged between 39 and 45 million board feet per year, dropping below 30 million board feet in 1980 and 1981:

Year	*Harvest*	*Receipts*	*Number of mills*
	--(Million board feet)[a]--		
1958	43.0	[b]	11
1963	51.3	42.9	[b]
1968	49.7	44.7	13
1969	48.5	[b]	[b]
1970	37.0	[b]	12
1972	38.0	41.0	11
1976	40.3	39.0	10
1980	39.9	27.0	8
1981	38.4	29.9	8

[a] International 1/4-inch rule.
[b] Data unavailable.

For most of the period, 1963–80, more veneer logs have been produced and utilized in Maine than in any other of the 14 northeastern states. It was not until 1980 that mills in any other northeastern state received more veneer logs than Maine mills—when the receipts for Maryland exceeded Maine's receipts by 1.6 million board feet.

All of the veneer logs and bolts from Maine are used to make commercial and face veneer for plywood and furniture and to make material for specialty products. The majority of the logs harvested in Maine for

commercial and face veneer are shipped to manufacturers outside the state, mostly to Canadian plywood mills. Nearly all of the veneer logs retained within the state and received from log processors outside the state are used by veneer mills within Maine to make specialty products.

Nearly half of the veneer logs and bolts produced in Maine in 1981 came from Washington County and Western Maine. Washington County produced over 10 million board feet, and nearly 9 million board feet came from Western Maine. Somerset County accounted for 14 percent of the production, and less than 10 percent came from each of the remaining six regions.

Maine's veneer industry and the production and receipts of veneer logs have declined since the mid-1960's. In recent years, declines in the economy, lessened product demand, competition from substitute products, the shift of the furniture and plywood industries to southern states, and the importation of Canadian plywood—much of which has been made from Maine logs—have been the major contributing factors. Since 1968, all three of Maine's hardwood plywood manufacturers and two specialty-veneer mills have closed; the production of veneer logs within the state has dropped by 23 percent and its veneer log receipts fell by about one-third.

Generally, over the years, more veneer logs and bolts have been produced annually in Maine than were used there. In 1981, the state was a net exporter of veneer logs and bolts, with nearly 8.6 million board feet more shipped out of state than received by the Maine mills.

In 1981, nearly 26 million board feet, or two-thirds, of Maine's veneer log production was retained in the state; only 3.9 million board feet of veneer logs were imported from outside the state. New Brunswick received nearly two-thirds of the 12.5 million board feet of the exported logs, and contributed nearly four-tenths of the imported logs. Quebec received one-third of the interstate shipments from Maine and shipped one-fifth of those received in Maine. New Hampshire supplied more than three-tenths of the veneer logs shipped into Maine from out-of-state log processors. Vermont accounted for less than 2 percent of the interstate shipments from Maine and for less than 10 percent of those veneer logs received by Maine.

Most of the veneer logs exported from Maine to New Brunswick in 1981 were from softwoods—mostly spruce. All of the logs sent from Maine to Vermont and Quebec were from hardwoods. All of the logs retained in or imported into Maine in 1981 were hardwoods—mostly white birch.

Most of the hardwood logs received by Maine's veneer industry in 1981 were used to make a vast array of specialty veneer products, such as beverage stirrers, toothpicks, frozen dessert sticks, forks, spoons, and the like. These products are stamped by cutting dyes at the specialty veneer plants from hardwood veneers that are neither container nor plywood veneers.

Maine has seven manufacturers of specialty veneers—more than any other state—located in central and southern Maine. The only other veneer mill is in Aroostook County and makes hardwood face veneer for paneling.

The specialty veneer mills add stability to Maine's wood-using industry—the number of mills, the species they use, and the products they make seldom change. Veneer-log receipts for these mills have changed slightly from year to year fluctuating with the economy and finished product demand. In 1968, about 25 million board feet were received by Maine's specialty mills. Receipts for specialty veneer-logs peaked in 1976 at 31.2 million board feet. Then, in 1980 and 1981, log receipts at Maine's specialty-veneer mills dropped to a low near 24 million board feet in the midst of poor economic conditions and decreased product demand.

The Turnery Bolt and Log Segment

Although the wood-turning industry in Maine has considerably more mills of much smaller size than the veneer industry, the wood-turning industry is nearly as active, as stable, and as important with respect to the state's timber-using industry. For many years, the wood-turning industry has used a variety of hardwood logs and bolts to make a variety of products, such as dowels, thread spools, textile bobbins, brush handles, billiard cues, furniture parts, ladies' shoe heels, and many other specialized and unique products. Logs and bolts of suitable quality and species for the wood-turning industry are often cut with sawlogs and pulpwood, then resold to the turneries at higher prices. Because of the importance and uniqueness of the industry, its products, and its raw material requirements, special care was taken in the 1981 Maine timber industry survey to segregate the production and receipts of logs and bolts used by the turnery mills.

The number and location of the mills, the species and volumes of material used, and the products produced have changed little since 1970. In 1981, there were about 40 turnery mills throughout the state consuming about 94,000 cords, or 8 million ft^3, of mostly hardwood bolts and logs.

The principal species used by the wood-turning industry in 1981 was white birch, followed in order by yellow birch, hard maple, aspen, beech, white ash, and soft maple. Only minimal volumes of softwoods and other hardwoods were used.

White birch comprised nearly half of the turnery bolts and logs produced in the state in 1981; and 40 percent of the bolts and logs received by Maine's turnery mills from all log processors in and out of the state. All of the 81,000 cords of turnery logs and bolts cut in Maine went to in-state mills.

Miscellaneous Segments

Maine has several smaller wood-using industries numbering about 170 mills which manufacture many other wood products, such as cabin logs, clothespins, cooperage, fencing, tool handles, piling, poles, shingles, and landscape and railroad ties (Figs. 14, 15, and 16). The combined 1981 timber products requirements from the state forest lands for these industries were only 8.8 million ft^3 (less than 50 million board feet)—2 percent of the state's total timber products output.

Figure 14.—Maine timber products are still used to build ships. In Thomaston, Maine, red oak is made into ship timber. **(Maine Forest Service).**

Maine is well known for its production of fencing products, particularly rustic fences. About 16.4 million board feet, or 3 million ft^3, of the state's 1981 timber products output was used by the fence industry. Nearly all of this material was white cedar used by the rustic fence industry to make posts, rails, and pickets for stockade-type fences. All of the timber harvested in Maine in 1981 for the fence industry, including very small volumes of hardwoods and other softwoods, was retained in the state. An additional 1.8 million board feet of white cedar was imported by the industry from Quebec. Following a period of growth from 1958 to 1970, the rustic-fence industry has shown decline over the last 11 years as a result of Canadian competition. In 1958 and in 1970, 7.9 and 24.4 million board feet, respectively, of Maine's timber was used by the industry. Fence-post production ranged from 123,000 posts in 1958 to 648,000 in 1970 to 480,000 in 1981.

One of the more important and more unique of the smaller wood-using industries in Maine is the manufacture of clothespins. Of the Nation's four manufacturers of wooden clothespins, the three largest, located in Maine, produce about 690 million clothespins annually—over half of the Nation's annual demand of 1.3 billion clothespins and nearly all of the nation's total production. Most of the remaining national clothespin requirement is imported from other countries. To meet this type of demand, Maine's clothespin manufacturers consumed 5.7 million board feet of hardwoods, mostly beech, in 1981. All of the 4.4 million board feet of the roundwood cut in Maine in 1981 to make clothespins went to manufacturers within the state. Most of the remaining one-fourth of the states' raw material requirements for the clothespin manufacturers came from New Hampshire.

Most of the remainder of Maine's 1981 timber harvest went to manufacturers of shingles and landscape and railroad ties. More than 7.8 million board feet were used to make shingles and about 7.4 million board feet were used for ties. About another 2 million board feet each were used to make cabin logs and miscellaneous types of wood-tool products, such as tool handles, small poles, and rods for prying. Less than 300,000 board feet of timber products went to make cooperage, piling, and large poles. The cooperage industry in Maine, which makes slack cooperage products, such as barrels and tubs for seafood, poultry, and vegetables, has declined over the years almost to the point of nonexistence as a result of competition from substitute products. Most of the cooperage made in Maine in 1981 consisted of novelty items, such as buckets and pails, and furniture. In 1981, the cooperage industry used only 200,000 board feet of softwoods as compared to 545,000 board feet in 1970 and 1,633,000 board feet in 1958. Some of Maine's 1981 timber harvest was used by one company to make waferboard—a relatively new composite product for the construction industry. Since 1981, the recent construction of two additional waferboard plants in Maine has added stimulus to the state's timber industry and its utilization of both the hardwood and softwood timber resource.

Figure 15.—Miscellaneous, custom dimension stock being made from white birch bolts at Sangerville, Maine. **(Maine Forest Service).**

Figure 16.—Sawmill and bolter mill facilities at a handle and dowel factory in Eddington, Maine. **(Maine Forest Service).**

The Use of Manufacturing Residues

Primary wood manufacturing residues, such as bark, chips, slabs, sawdust, and the like, have increased in utility and value over the years. Maine's pulpmills, especially, its veneer mills and sawmills, and many other industrial facilities have been using residues as readily available, dependable, and alternative raw material sources for woodpulp and energy. Economic and environmental considerations have discouraged Maine's wood-product manufacturers from disposing of their residues through dumping and open burning, and have encouraged them to either use or market this material.

Not only have Maine's primary wood manufacturers become more efficient in converting logs and boltwood into other products, but they and other wood residue users have made considerable use of the residues generated in the conversion (Table 24 and Fig. 17). In 1981, nearly 62 million ft³ of residues were generated by Maine's primary wood manufacturers, excluding the woodpulp industry. Over 60 million ft³, or about 98 percent, of the residues were recovered and used. Woody material accounted for 48.1 million ft³, or 78 percent, of the residues; bark amounted to 13.7 million ft³.

There was a very heavy demand for all types of residues, both bark and the woody material, in Maine in 1981. Ninety-six percent of the available bark was recovered and used, mostly as fuel, and 98 percent of the wood residues were recovered and used, mostly as raw material for the woodpulp industry. More than half of the woody material was coarse residue, such as sawmill slabs and edgings, suitable for conversion into wood chips for fiber products. Nearly four-fifths of the coarse residue was eventually made into fiber; most of the rest was used as fuelwood. Thirty-six percent of the fine residue, such as sawdust and shavings, also went for fiber. An equal amount of the fine residue was used for fuel, and nearly one-fourth was used for livestock bedding and farm and horticultural mulch. In 1981, only 4 percent or less of the total residues and each type of residue went unused or for other purposes (Fig. 18). This percentage is similar to that noted in timber industry surveys for other northeastern states (Wharton 1984).

As a result of increased use, the volume of unused wood residues at primary manufacturing plants has dropped substantially in recent years. In 1970, 10.4 million ft³ of coarse and fine wood residues went unused. In 1981, less than one-tenth as much—885 thousand ft³—went unused (Table 24).

The amount of residues used for fuel has increased substantially over the years. In 1970, only 8.4 million ft³ of wood-industry residues were used for fuel. By 1981, the volume of bark and wood residues used for this purpose had nearly tripled to 24.7 million ft³ (Fig. 19).

In 1981, the pulpmills in Maine used most of the 34 million ft³ of the bark residue they generated for fuel. Eleven of the fourteen mills have boilers to burn the bark, and an additional mill has planned to build a boiler. Ninety-five percent of the bark was used mainly for fuel, with a small portion used for mulch and other uses. The unused 5 percent was either disposed of or stockpiled for future use.

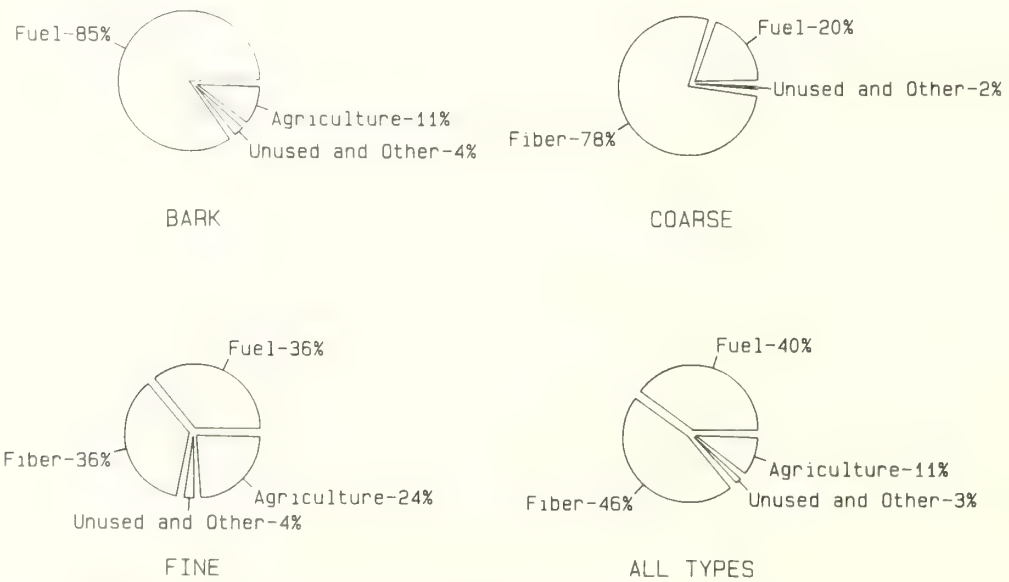


Figure 17.—Wood-manufacturing plant residue use in Maine in 1981, in percent, by residue type.

Figure 18.—Manufacturing plant residues are used extensively in Maine. At Clifton, wood shavings are baled to form backstops for targets. **(Maine Forest Service).**

Figure 19.—Forty percent of Maine's primary manufacturing plant residues are used for fuel, mostly as industrial fuel. At this sawmill in Sanford, Maine, plant residues and roundwood chips are mixed to fuel boilers for steam and heat for kilns, and to provide heat and co-generated electricity to the mill. Excess electricity is supplied to the local electric company during non-peak hours **(Maine Forest Service).**

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Appendix

Definition of Terms

Harvest

Harvest. The aggregate volume of timber produced for industrial or consumer uses.

Timber products output. Includes roundwood (round timber) products harvested from growing stock on commercial forest land; from other sources, such as cull trees, salvable dead trees, limbs and tops, and saplings; from trees on noncommercial and nonforest lands; and from manufacturing plant byproducts.

Industrial timber harvest. Total production of round timber for conversion into wood products, except fuelwood.

Manufacture

Primary wood-manufacturing plant. A plant that converts roundwood (round timber) to wood products such as woodpulp, lumber, veneer, cooperage, and dimension.

Roundwood products. Logs, bolts, and other round timber generated from harvesting trees for industrial or consumer use.

Sawlog. A roundwood product, from which products such as lumber are sawn, and which meets certain minimum standards of diameter, length, and defect, including a minimum 8-foot length and combination of size and defect specified in regional standards.

Pulpwood. Roundwood mostly converted into 4- or 5-foot lengths or chips and chipped plant residues that are used to make woodpulp.

Boltwood. Roundwood mostly converted into 4- to 6-foot lengths to be sawn into lumber at bolter-type sawmills, prepared for the manufacture of woodpulp, or used to make other products, such as cooperage, turned products, and veneer, from short, round timber.

Turnery log or bolt. A roundwood product from which blanks are sawn and turned that usually meet certain minimum standards of diameter, length, and defect.

Veneer log or bolt. A roundwood product from which veneer is sliced or sawn that usually meets certain minimum standards of diameter, length, and defect.

Cabin logs. Relatively slender round timber products cut to standard sizes and meeting specifications of strength, straightness, and soundness, finished for use in constructing cabins, barns, and other buildings.

Piles (piling). Relatively slender structural round timber products cut to the maximum length possible within top-circumference and other specifications of strength, straightness, and soundness, to be driven or otherwise introduced into the soil, usually to provide vertical or lateral support in buildings, foundations, and other structures.

Poles. Round timber products cut to standard sizes and meeting specifications of strength, straightness, and soundness to be driven into the soil, usually to provide vertical or lateral support for electric power and telephone transmission lines.

Posts. Short, round timber products to be used in the upright position to support fence structures.

Roundwood production. The manufacture of roundwood (round timber) products, such as logs and bolts, generated from harvesting trees for conversion into wood products.

Roundwood receipts. The roundwood (round timber) products, such as logs and bolts, received by primary wood-manufacturing plants for conversion into wood products.

Residues

Manufacturing plant residues. Bark and woody materials that are generated when round timber (roundwood) is converted into wood products; includes slabs, edgings, trimmings, miscuts, sawdust, shavings, veneer cores and clippings, and pulp screenings.

Plant byproducts. Wood products such as pulp chips, recycled from manufacturing plant residues.

Unused manufacturing residues. Plant residues that are dumped or destroyed and not recovered from plant byproducts.

Coarse residues. Manufacturing residues suitable for chipping, such as slabs, edgings, and veneer cores.

Fine residues. Manufacturing residues not suitable for chipping, such as sawdust and shavings.

Species

Softwoods. Coniferous trees, usually evergreen, with needles or scale-like leaves.

Hardwoods. Dicotyledonous trees, usually broad-leaved and deciduous.

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Round Timber Conversions for Major Products

Softwood sawlogs: M bf(International ¼-inch rule) = 160.1 ft^3 = 4.54 m^3

Hardwood sawlogs: M bf(International ¼-inch rule) = 152.4 ft^3 = 4.32 m^3

Pulpwood and turnery bolts: 1 standard cord = 85 ft^3 = 2.41 m^3 = about 2.3 green tons, depending on species.

Veneer and cooperage logs and bolts: M bf(International ¼-inch rule) = 152.9 ft^3 = 4.33 m^3

Table 1.—Volume of industrial roundwood, by product harvested, Maine, 1981

Product	Standard unit	Volume in standard units		
		Softwoods	Hardwoods	All species
Sawlogs[a]	M board feet[b]	730,896	62,881	793,77
Pulpwood	Standard cords[c]	2,198,571	1,219,015	3,417,58
Turnery bolts[d]	Standard cords[c]	212	80,960	81,17
Veneer logs and bolts	M board feet[b]	8,116	30,327	38,44
Cabin logs	M linear feet	719	—	71
Fence stock[e]	M board feet	16,255	106	16,36
Misc. products[f]	M ft³	1,960	3,538	5,49

Product	Roundwood volume			Roundwood volume		
	Softwoods	Hardwoods	All species	Softwoods	Hardwoods	All species
	Thousand ft³			*Thousand m³*		
Sawlogs[a]	117,007	9,581	126,588	3,313.8	271.4	3,585.
Pulpwood	186,879	103,616	290,495	5,292.7	2,934.6	8,227.
Turnery bolts[d]	18	6,882	6,900	.5	194.9	195.
Veneer logs and bolts	1,241	4,636	5,877	35.1	131.3	166.
Cabin logs	316	—	316	8.9	—	8.
Fence stock[e]	2,985	23	3,008	84.5	.7	85.
Misc. products[f]	1,960	3,538	5,498	55.5	100.2	155.
Total	310,406	128,276	438,682	8,791.0	3,663.1	12,424.

[a]Includes boltwood sawn into lumber and lobster-trap stock.
[b]International ¼-inch rule.
[c]Rough wood basis, equivalent to 85 ft³ of solid wood.
[d]Includes boltwood used to make products such as dowels, furniture parts, thread spools, and other turned products.
[e]Includes stock for posts, rails, and pickets.
[f]Includes landscape and railroad ties, cooperage logs and bolts, poles, piling, and stock for clothespins, miscellaneous dimensior shingles, tool handles and small poles, and numerous other items.

Table 2.—Change in timber products output, Maine, 1970 and 1981

Product	All species			Softwoods			Hardwoods		
	1970	1981	Change	1970	1981	Change	1970	1981	Change
	Million ft³		*Percent*	*Million ft³*		*Percent*	*Million ft³*		*Percent*
Sawlogs[a]	98.2	126.6	+29	82.8	117.0	+41	15.4	9.6	−38
Pulpwood	273.8	290.5	+ 6	197.2	186.9	− 5	76.6	103.6	+35
Turnery bolts[b]	7.6	6.9	− 9	*	*	—	7.6	6.9	− 9
Veneer logs and bolts	6.6	5.9	−11	*	1.2	[d]	6.6	4.7	−29
Misc. products[c]	3.9	8.8	[d]	3.9	5.3	+36	*	3.5	[d]
Total	390.1	438.7	+12	283.9	310.4	+ 9	106.2	128.3	+21
	Million m³			*Million m³*			*Million m³*		
Sawlogs[a]	2.8	3.6		2.3	3.3		0.4	0.3	
Pulpwood	7.7	8.2		5.6	5.3		2.2	2.9	
Turnery bolts[b]	.2	.2		*	*		.2	.2	
Veneer logs and bolts	.2	.2		*	*		.2	.1	
Misc. products[c]	.1	.2		.1	.2		*	.1	
Total	11.0	12.4		8.0	8.8		3.0	3.6	

[a]Includes boltwood sawn into lumber and lobster trap stock.
[b]Includes boltwood used to make products, such as dowels, furniture posts, thread spools, and other turned products.
[c]Includes cabin logs, fence stock, landscape and railroad ties, cooperage logs and bolts, poles, piling, and stock for clothespins, miscellaneous dimension, shingles, tool handles and small poles, and numerous other items.
[d]Greater than 100 percent.
*Less than 50,000 ft³ or 50,000 m³.

Table 3.—Industrial timber harvest, by major species groups, Maine, for selected years (In millions of ft³)[a]

Year	All products			Pulpwood			Excluding pulpwood		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
1951[b]	266.4	211.3	55.1	166.9	126.9	40.0	99.5	84.4	15.1
1956[b]	319.5	250.2	69.3	225.9	177.8	48.1	93.6	72.4	21.2
1958[c]	228.9	164.8	64.1	140.5	111.2	29.3	88.4	53.6	34.8
1966[b]	341.6	249.6	92.0	235.2	178.6	56.6	106.4	71.0	35.4
1970[d]	390.1	284.0	106.1	273.8	197.2	76.6	116.3	86.8	29.5
1971[b]	368.3	266.5	101.8	241.2	169.6	71.6	127.1	96.9	30.2
1975[b]	342.0	252.3	89.7	211.8	147.8	64.0	130.2	104.5	25.7
1981[e]	438.7	310.4	128.3	290.5	186.9	103.6	148.2	123.5	24.7

[a]Source data prior to 1981 converted to cubic feet using 500 board feet or 1 cord equals 85 ft³ of solid wood, rough wood basis, when cubic footage was unknown or for purposes of comparison.
[b]Source: Maine Forest Service, 1952-82, except as noted.
[c]Source: Ferguson and Longwood.
[d]Source: Ferguson and Kingsley.
[e]1981 data based on conversion factors developed for this survey following table index.

Table 4.—Industrial timber harvest,[a] by geographic unit, softwoods and hardwoods, and products, Maine, 1981

Geographic unit and species group	Sawlogs	Pulpwood	Other products[b]	All products
	Thousand ft³			
Aroostook County				
Softwoods	41,073	42,313	3,085	86,471
Hardwoods	2,674	8,775	1,335	12,764
Total	43,747	51,068	4,420	99,235
Capital Region				
Softwoods	5,605	13,030	141	18,776
Hardwoods	1,250	5,482	977	7,709
Total	6,855	18,512	1,118	26,485
Casco Bay				
Softwoods	10,904	6,927	65	17,896
Hardwoods	850	2,924	1,077	4,851
Total	11,754	9,851	1,142	22,747
Hancock County				
Softwoods	5,740	3,485	92	9,317
Hardwoods	64	3,264	308	3,636
Total	5,804	6,749	400	12,953
Penobscot County				
Softwoods	9,336	19,406	1,016	29,788
Hardwoods	312	14,654	1,887	16,853
Total	9,678	34,060	2,903	46,641
Piscataquis County				
Softwoods	11,064	34,866	171	46,101
Hardwoods	1,178	15,114	1,284	17,576
Total	12,242	49,980	1,455	63,677
Somerset County				
Softwoods	7,522	36,575	552	44,649
Hardwoods	306	12,810	2,508	15,624
Total	7,828	49,385	3,060	60,273
Washington County				
Softwoods	10,704	6,707	1,328	18,739
Hardwoods	44	17,229	641	17,914
Total	10,748	23,936	1,969	36,653
Western Maine				
Softwoods	15,029	23,570	70	38,669
Hardwoods	2,903	23,384	5,062	31,349
Total	17,932	46,954	5,132	70,018
All units				
Softwoods	117,007	186,879	6,520	310,406
Hardwoods	9,581	103,616	15,079	128,276
Total	126,588	290,495	21,599	438,682

(Table 4—cont.)

Geographic unit and species group	Sawlogs	Pulpwood	Other products[b]	All products
		Thousand m³		
Aroostook County				
Softwoods	1,163.2	1,198.3	87.3	2,448.8
Hardwoods	75.7	248.0	37.8	361.5
Total	1,238.9	1,446.3	125.1	2,810.3
Capital Region				
Softwoods	158.7	369.0	4.0	531.7
Hardwoods	35.4	155.3	27.7	218.4
Total	194.1	524.3	31.7	750.1
Casco Bay				
Softwoods	308.8	196.2	1.8	506.8
Hardwoods	24.1	82.8	30.5	137.4
Total	332.9	279.0	32.3	644.2
Hancock County				
Softwoods	162.6	98.7	2.6	263.9
Hardwoods	1.8	92.4	8.7	102.9
Total	164.4	191.1	11.3	366.8
Penobscot County				
Softwoods	265.3	549.6	28.8	843.7
Hardwoods	8.8	415.0	53.4	477.2
Total	274.1	964.6	82.2	1,320.9
Piscataquis County				
Softwoods	313.4	987.5	4.8	1,305.7
Hardwoods	33.4	428.0	36.4	497.8
Total	346.8	1,415.5	41.2	1,803.5
Somerset County				
Softwoods	213.0	1,035.9	15.6	1,264.5
Hardwoods	8.7	362.8	71.1	442.6
Total	221.7	1,398.7	86.7	1,707.1
Washington County				
Softwoods	303.2	189.9	37.6	530.7
Hardwoods	1.2	488.0	18.2	507.4
Total	304.4	677.9	55.8	1,038.1
Western Maine				
Softwoods	425.6	667.6	2.0	1,095.2
Hardwoods	82.3	662.3	143.3	887.9
Total	507.9	1,329.9	145.3	1,983.1
All units				
Softwoods	3,313.8	5,292.7	184.5	8,791.0
Hardwoods	271.4	2,934.6	427.1	3,663.1
Total	3,585.2	8,227.3	611.6	12,424.1

[a]Does not include fuelwood or removals that were not manufactured into industrial products.

[b]Includes cabin, cooperage and veneer logs, turnery bolts, poles, piling, and stock for bowls, clothespins, fencing, shingles, ties, miscellaneous dimension, and numerous other products.

Table 5.—Number of operating sawmills, by geographic unit and annual production class, Maine, 1981

Geographic unit	Production class[a]					
	More than 10 million board feet	Between 5–10 million board feet	Between 1–5 million board feet	Between 10,000 and 1 million board feet	Custom mills	Total
Aroostook County	4	1	2	14	15	36
Capital Region	1	2	2	21	65	91
Casco Bay	2	1	10	26	52	91
Hancock County	—	—	1	5	12	18
Penobscot County	2	2	6	6	15	31
Piscataquis County	1	—	4	5	12	22
Somerset County	2	—	1	6	10	19
Washington County	1	—	—	5	8	14
Western Maine	2	4	13	7	20	46
All units	15	10	39	95	209	368

[a]Based on sawlog receipts.

Table 6.—Sawlog[a] production and receipts relationships, by geographic unit, Maine, 1981 (In millions of board feet)[b]

Geographic unit	Production	Receipts	Net export(+) import(−)
Aroostook County	274.1	164.0	110.1
Capital Region	43.2	43.0	.2
Casco Bay	73.7	71.9	1.8
Hancock County	36.3	6.4	29.9
Penobscot County	60.6	164.6	−104.0
Piscataquis County	76.8	24.0	52.8
Somerset County	49.0	36.0	13.0
Washington County	67.2	55.8	11.4
Western Maine	112.9	107.6	5.3
All units	793.8	673.3	120.5

[a]Includes boltwood sawn into lumber and lobster-trap stock.
[b]International ¼-inch rule.

Table 7.—Sawlog[a] production, by softwoods and hardwoods, geographic unit and destination of shipment, Maine 1981
(In millions of board feet)[b]

Species group and geographic unit	Retained in unit	Logs shipped to:		Total production
		Other units	Other states	
Softwoods				
Aroostook County	125.2	35.2	96.1	256.5
Capital Region	28.7	6.3	*	35.0
Casco Bay	42.7	25.3	.1	68.1
Hancock County	4.2	31.7	—	35.9
Penobscot County	43.0	14.9	.6	58.5
Piscataquis County	16.9	38.9	13.3	69.1
Somerset County	22.9	6.6	17.5	47.0
Washington County	25.5	41.4	—	66.9
Western Maine	59.7	17.5	16.7	93.9
Total softwoods	368.8	217.8	144.3	730.9
Hardwoods				
Aroostook County	3.0	0.2	14.4	17.6
Capital Region	7.0	1.2	—	8.2
Casco Bay	3.2	2.1	.3	5.6
Hancock County	.1	.3	—	.4
Penobscot County	1.7	.4	—	2.1
Piscataquis County	6.9	*	.8	7.7
Somerset County	.1	1.2	.7	2.0
Washington County	.1	.2	—	.3
Western Maine	16.1	2.9	—	19.0
Total hardwoods	38.2	8.5	16.2	62.9
All species	407.0	226.3	160.5	793.8

[a]Includes boltwood sawn into lumber and lobster-trap stock.
[b]International ¼-inch rule.
*Less than 50,000 board feet.

Table 8.—Sawlog[a] receipts, by softwoods and hardwoods, geographic unit, and origin of shipment, Maine, 1981
(In millions of board feet)[b]

Species group and geographic unit	Where produced			Total receipts
	In unit	In state	In other states	
Softwoods				
Aroostook County	125.2	34.4	1.2	160.8
Capital Region	28.7	6.2	.5	35.4
Casco Bay	42.7	16.1	6.3	65.1
Hancock County	4.2	2.0	—	6.2
Penobscot County	43.0	118.5	.8	162.3
Piscataquis County	16.9	.2	—	17.1
Somerset County	22.9	13.0	—	35.9
Washington County	25.5	4.4	25.8	55.7
Western Maine	59.7	23.0	4.3	87.0
Total softwoods	368.8	217.8	38.9	625.5
Hardwoods				
Aroostook County	3.0	0.2	—	3.2
Capital Region	7.0	.6	—	7.6
Casco Bay	3.2	3.6	—	6.8
Hancock County	.1	.1	—	.2
Penobscot County	1.7	.6	—	2.3
Piscataquis County	6.9	—	—	6.9
Somerset County	.1	*	—	.1
Washington County	.1	*	—	.1
Western Maine	16.1	3.4	1.1	20.6
Total hardwoods	38.2	8.5	1.1	47.8
All species	407.0	226.3	40.0	673.3

[a]Includes boltwood sawn into lumber and lobster-trap stock.
[b]International ¼-inch rule.
*Less than 50,000 board feet.

Table 9.—Sawlog[a] production and receipts in the Aroostook County Unit, by species, and destination and origin of shipment, Maine, 1981 (In millions of board feet)[b]

Species	Cut and retained in unit	Out-shipments		Total production	In-shipments		Total receipts
		To other units	To other states[c]		From other units	From other states	
Balsam fir	37.1	11.2	41.9	90.2	1.9	0.4	39.4
Hemlock	1.2	2.3	.1	3.6	.7	—	1.9
White pine	2.9	.4	.8	4.1	2.5	—	5.4
Spruce	82.6	21.2	51.7	155.5	29.2	.7	112.5
Other softwoods[d]	1.4	.1	1.6	3.1	.1	.1	1.6
Total softwoods	125.2	35.2	96.1	256.5	34.4	1.2	160.8
Ash	0.8	*	0.1	0.9	—	—	0.8
Aspen	.2	—	.7	.9	—	—	.2
Beech	.1	—	2.4	2.5	*	—	.1
Yellow birch	.4	*	1.2	1.6	—	—	.4
Hard maple	1.3	0.1	8.7	10.1	*	—	1.3
Other hardwoods[e]	.2	.1	1.3	1.6	0.2	—	.4
Total hardwoods	3.0	0.2	14.4	17.6	0.2	—	3.2
All species	128.2	35.4	110.5	274.1	34.6	1.2	164.0

[a]Includes boltwood sawn into lumber and lobster-trap stock.
[b]International ¼-inch rule.
[c]Includes Connecticut, Massachusetts, New Hampshire, New York, Vermont, and Canada.
[d]Includes cedar, pitch and red pine, and tamarack.
[e]Includes white birch, soft maple, red oak, elm, balsam poplar, and other less significant species.
*Less than 50,000 board feet.

Table 10.—Sawlog[a] production and receipts in the Capital Region Unit, by species, and destination and origin of shipment, Maine, 1981 (In millions of board feet)[b]

Species	Cut and retained in unit	Out-shipments		Total production	In-shipments		Total receipts
		To other units	To other states[c]		From other units	From other states	
Balsam fir	*	*	—	*	—	—	*
Hemlock	3.2	1.0	—	4.2	1.1	—	4.3
White pine	23.2	4.7	—	27.9	4.4	0.5	28.1
Spruce	2.1	.5	*	2.6	.7	—	2.8
Other softwoods[d]	.2	.1	—	.3	*	—	.2
Total softwoods	28.7	6.3	*	35.0	6.2	0.5	35.4
Ash	0.2	*	—	0.2	0.1	—	0.3
Aspen	.1	0.2	—	.3	*	—	.1
Beech	.6	.1	—	.7	.2	—	.8
Yellow birch	.1	*	—	.1	—	—	.1
Hard maple	.1	.2	—	.3	.1	—	.2
Other hardwoods[e]	5.9	.7	—	6.6	.2	—	6.1
Total hardwoods	7.0	1.2	—	8.2	0.6	—	7.6
All species	35.7	7.5	*	43.2	6.8	0.5	43.0

[a]Includes boltwood sawn into lumber and lobster-trap stock.
[b]International ¼-inch rule.
[c]Includes Connecticut, Massachusetts, New Hampshire, New York, Vermont, and Canada.
[d]Includes cedar, pitch and red pine, and tamarack.
[e]Includes white birch, soft maple, red oak, elm, balsam poplar, and other less significant species.
*Less than 50,000 board feet.

Table 11.—Sawlog[a] production and receipts in the Casco Bay Unit, by species, and destination and origin of shipment, Maine, 1981 (In millions of board feet)[b]

Species	Cut and retained in unit	Out-shipments		Total production	In-shipments		Tota receip
		To other units	To other states[c]		From other units	From other states	
Balsam fir	2.1	*	—	2.1	0.9	—	3.0
Hemlock	15.9	3.0	*	18.9	6.4	0.2	22.5
White pine	23.0	20.4	0.1	43.5	4.0	6.1	33.1
Spruce	1.5	1.4	—	2.9	4.7	—	6.2
Other softwoods[d]	.2	.5	*	.7	.1	—	.3
Total softwoods	42.7	25.3	0.1	68.1	16.1	6.3	65.1
Ash	*	0.1	—	0.1	*	—	*
Aspen	0.1	*	—	.1	0.6	—	0.7
Beech	.1	*	*	.1	.5	—	.6
Yellow birch	.1	.1	0.3	.5	—	—	.1
Hard maple	.3	.2	*	.5	1.7	—	2.0
Other hardwoods[e]	2.6	1.7	—	4.3	.8	—	3.4
Total hardwoods	3.2	2.1	0.3	5.6	3.6	—	6.8
All species	45.9	27.4	0.4	73.7	19.7	6.3	71.9

[a]Includes boltwood sawn into lumber and lobster-trap stock.
[b]International ¼-inch rule.
[c]Includes Connecticut, Massachusetts, New Hampshire, New York, Vermont, and Canada.
[d]Includes cedar, pitch and red pine, and tamarack.
[e]Includes white birch, soft maple, red oak, elm, balsam poplar, and other less significant species.
*Less than 50,000 board feet.

Table 12.—Sawlog[a] production and receipts in the Hancock County Unit, by species, and destination and origin of shipment, Maine, 1981 (In millions of board feet)[b]

Species	Cut and retained in unit	Out-shipments		Total production	In-shipments		Tota receip
		To other units	To other states[c]		From other units	From other states	
Balsam fir	0.1	1.9	—	2.0	—	—	0.1
Hemlock	.2	5.6	—	5.8	*	—	.2
White pine	2.5	3.7	—	6.2	1.6	—	4.1
Spruce	1.2	16.1	—	17.3	.3	—	1.5
Other softwoods[d]	.2	4.4	—	4.6	.1	—	.3
Total softwoods	4.2	31.7	—	35.9	2.0	—	6.2
Ash	*	0.1	—	0.1	—	—	*
Aspen	—	—	—	—	—	—	—
Beech	*	*	—	*	—	—	*
Yellow birch	*	*	—	*	—	—	*
Hard maple	*	.1	—	.1	—	—	*
Other hardwoods[e]	0.1	.1	—	.2	0.1	—	0.2
Total hardwoods	0.1	0.3	—	0.4	0.1	—	0.2
All species	4.3	32.0	—	36.3	2.1	—	6.4

[a]Includes boltwood sawn into lumber and lobster-trap stock.
[b]International ¼-inch rule.
[c]Includes Connecticut, Massachusetts, New Hampshire, New York, Vermont, and Canada.
[d]Includes cedar, pitch and red pine, and tamarack.
[e]Includes white birch, soft maple, red oak, elm, balsam poplar, and other less significant species.
*Less than 50,000 board feet.

Table 13.—Sawlog[a] production and receipts in the Penobscot County Unit, by species, and destination and origin of shipment, Maine, 1981 (In millions of board feet)[b]

Species	Cut and retained in unit	Out-shipments		Total production	In-shipments		Total receipts
		To other units	To other states[c]		From other units	From other states	
Balsam fir	3.9	1.0	0.6	5.5	21.0	—	24.9
Hemlock	10.2	.7	—	10.9	18.3	—	28.5
White pine	18.3	1.5	—	19.8	12.8	0.8	31.9
Spruce	10.1	11.6	—	21.7	60.3	—	70.4
Other softwoods[d]	.5	.1	—	.6	6.1	—	6.6
Total softwoods	43.0	14.9	0.6	58.5	118.5	0.8	162.3
Ash	0.2	—	—	0.2	0.1	—	0.3
Aspen	.3	—	—	.3	*	—	.3
Beech	.1	*	—	.1	*	—	.1
Yellow birch	.2	—	—	.2	.1	—	.3
Hard maple	.7	0.1	—	.8	.2	—	.9
Other hardwoods[e]	.2	.3	—	.5	.2	—	.4
Total hardwoods	1.7	0.4	—	2.1	0.6	—	2.3
All species	44.7	15.3	0.6	60.6	119.1	0.8	164.6

[a]Includes boltwood sawn into lumber and lobster-trap stock.
[b]International ¼-inch rule.
[c]Includes Connecticut, Massachusetts, New Hampshire, New York, Vermont, and Canada.
[d]Includes cedar, pitch and red pine, and tamarack.
[e]Includes white birch, soft maple, red oak, elm, balsam poplar, and other less significant species.
*Less than 50,000 board feet.

Table 14.—Sawlog[a] production and receipts in the Piscataquis County Unit, by species, and destination and origin of shipment, Maine, 1981 (In millions of board feet)[b]

Species	Cut and retained in unit	Out-shipments		Total production	In-shipments		Total receipts
		To other units	To other states[c]		From other units	From other states	
alsam fir	5.3	6.3	0.8	12.4	—	—	5.3
emlock	.4	2.2	—	2.6	—	—	.4
/hite pine	.1	3.6	.3	4.0	—	—	.1
pruce	10.6	26.8	12.2	49.6	*	—	10.6
ther softwoods[d]	.5	—	—	.5	0.2	—	.7
Total softwoods	16.9	38.9	13.3	69.1	0.2	—	17.1
sh	0.3	—	—	0.3	—	—	0.3
spen	.4	—	0.1	.5	—	—	.4
eech	.4	—	—	.4	—	—	.4
ellow birch	.6	—	*	.6	—	—	.6
ard maple	3.2	—	—	3.2	—	—	3.2
ther hardwoods[e]	2.0	*	.7	2.7	—	—	2.0
Total hardwoods	6.9	*	0.8	7.7	—	—	6.9
l species	23.8	38.9	14.1	76.8	0.2	—	24.0

[a]Includes boltwood sawn into lumber and lobster-trap stock.
[b]International ¼-inch rule.
[c]Includes Connecticut, Massachusetts, New Hampshire, New York, Vermont, and Canada.
[d]Includes cedar, pitch and red pine, and tamarack.
[e]Includes white birch, soft maple, red oak, elm, balsam poplar, and other less significant species.
*Less than 50,000 board feet.

Table 15.—Sawlog[a] production and receipts in the Somerset County Unit, by species, and destination and origin of shipment, Maine, 1981 (In millions of board feet)[b]

Species	Cut and retained in unit	Out-shipments		Total production	In-shipments		Total receipts
		To other units	To other states[c]		From other units	From other states	
Balsam fir	2.4	0.5	1.2	4.1	—	—	2.4
Hemlock	.4	.6	—	1.0	*	—	.4
White pine	7.8	2.1	.5	10.4	10.2	—	18.0
Spruce	11.6	3.1	15.7	30.4	2.2	—	13.8
Other softwoods[d]	.7	.3	.1	1.1	.6	—	1.3
Total softwoods	22.9	6.6	17.5	47.0	13.0	—	35.9
Ash	*	0.1	—	0.1	—	—	*
Aspen	*	*	0.1	.1	—	—	*
Beech	*	.1	—	.1	—	—	*
Yellow birch	*	.1	—	.1	—	—	*
Hard maple	*	.1	—	.1	—	—	*
Other hardwoods[e]	0.1	.8	.6	1.5	*	—	0.1
Total hardwoods	0.1	1.2	0.7	2.0	*	—	0.1
All species	23.0	7.8	18.2	49.0	13.0	—	36.0

[a]Includes boltwood sawn into lumber and lobster-trap stock.
[b]International ¼-inch rule.
[c]Includes Connecticut, Massachusetts, New Hampshire, New York, Vermont, and Canada.
[d]Includes cedar, pitch and red pine, and tamarack.
[e]Includes white birch, soft maple, red oak, elm, balsam poplar, and other less significant species.
*Less than 50,000 board feet.

Table 16.—Sawlog[a] production and receipts in the Washington County Unit, by species, and destination and origin of shipment, Maine, 1981 (In millions of board feet)[b]

Species	Cut and retained in unit	Out-shipments		Total production	In-shipments		Total receipts
		To other units	To other states[c]		From other units	From other states	
Balsam fir	1.0	2.1	—	3.1	0.2	2.1	3.3
Hemlock	2.1	8.3	—	10.4	*	2.1	4.2
White pine	.8	11.0	—	11.8	.2	.5	1.5
Spruce	21.3	18.0	—	39.3	3.7	18.9	43.9
Other softwoods[d]	.3	2.0	—	2.3	.3	2.2	2.8
Total softwoods	25.5	41.4	—	66.9	4.4	25.8	55.7
Ash	*	0.1	—	0.1	—	—	*
Aspen	*	—	—	*	—	—	*
Beech	*	—	—	*	—	—	*
Yellow birch	*	*	—	*	—	—	*
Hard maple	*	.1	—	.1	—	—	*
Other hardwoods[e]	0.1	*	—	.1	*	—	0.1
Total hardwoods	0.1	0.2	—	0.3	*	—	0.1
All species	25.6	41.6	—	67.2	4.4	25.8	55.8

[a]Includes boltwood sawn into lumber and lobster-trap stock.
[b]International ¼-inch rule.
[c]Includes Connecticut, Massachusetts, New Hampshire, New York, Vermont, and Canada.
[d]Includes cedar, pitch and red pine, and tamarack.
[e]Includes white birch, soft maple, red oak, elm, balsam poplar, and other less significant species.
*Less than 50,000 board feet.

Table 17.—Sawlog[a] production and receipts in the Western Maine Unit, by species, and destination and origin of shipment, Maine, 1981 (In millions of board feet)[b]

Species	Cut and retained in unit	Out-shipments		Total production	In-shipments		Total receipts
		To other units	To other states[c]		From other units	From other states	
Balsam fir	11.5	1.0	11.2	23.7	*	—	11.5
Hemlock	3.6	5.6	—	9.2	2.8	*	6.4
White pine	42.4	8.2	.1	50.7	19.9	4.3	66.6
Spruce	1.7	2.6	5.4	9.7	.2	*	1.9
Other softwoods[d]	.5	.1	*	.6	.1	—	.6
Total softwoods	59.7	17.5	16.7	93.9	23.0	4.3	87.0
Ash	1.3	*	—	1.3	0.2	*	1.5
Aspen	.2	.4	—	.6	*	—	.2
Beech	.2	.5	—	.7	*	—	.2
Yellow birch	1.7	—	—	1.7	.1	*	1.8
Hard maple	4.4	1.6	—	6.0	.5	.8	5.7
Other hardwoods[e]	8.3	.4	—	8.7	2.6	.3	11.2
Total hardwoods	16.1	2.9	—	19.0	3.4	1.1	20.6
All species	75.8	20.4	16.7	112.9	26.4	5.4	107.6

[a]Includes boltwood sawn into lumber and lobster-trap stock.
[b]International ¼-inch rule.
[c]Includes Connecticut, Massachusetts, New Hampshire, New York, Vermont, and Canada.
[d]Includes cedar, pitch and red pine, and tamarack.
[e]Includes white birch, soft maple, red oak, elm, balsam poplar, and other less significant species.
*Less than 50,000 board feet.

Table 18.—Sawlog[a] production and receipts, by species, and destination and origin of shipment, Maine, 1981 (In millions of board feet)[b]

Species	Cut and retained in state	Exported to:			Total production	Imported from:			Total receipts
		Other states[c]	New Brunswick[d]	Quebec		Other states[c]	New Brunswick	Quebec	
Balsam fir	87.4	5.0	9.2	41.5	143.1	—	2.3	0.2	89.9
Hemlock	66.5	—	.1	—	66.6	0.2	2.1	—	68.8
White pine	176.6	.2	.6	1.0	178.4	11.6	.6	—	188.8
Spruce	244.0	4.0	9.2	71.8	329.0	*	19.3	.3	263.6
Other softwoods[e]	12.1	—	*	1.7	13.8	.1	2.2	—	14.4
Total softwoods	586.6	9.2	19.1	116.0	730.9	11.9	26.5	0.5	625.5
Ash	3.2	—	0.1	—	3.3	*	—	—	3.2
Aspen	1.9	0.1	.6	0.2	2.8	—	—	—	1.9
Beech	2.2	—	2.4	*	4.6	—	—	—	2.2
Yellow Birch	3.3	—	1.1	.4	4.8	*	—	—	3.3
Hard maple	12.5	—	8.2	.5	21.2	0.8	—	—	13.3
Other hardwoods[f]	23.6	—	1.2	1.4	26.2	.3	—	—	23.9
Total hardwoods	46.7	0.1	13.6	2.5	62.9	1.1	—	—	47.8
All species	633.3	9.3	32.7	118.5	793.8	13.0	26.5	0.5	673.3

[a]Includes boltwood sawn into lumber and lobster-trap stock.
[b]International ¼-inch rule.
[c]Includes Connecticut, Massachusetts, New Hampshire, New York, and Vermont.
[d]Includes 162,000 board feet white and yellow birch received in Ontario.
[e]Includes cedar, pitch and red pine, and tamarack.
[f]Includes white birch, soft maple, red oak, elm, balsam poplar, and other less significant species.
*Less than 50,000 board feet.

Table 19.—Pulpwood production, by softwoods and hardwoods, Maine, 1967-81[a] (In thousands of rough cords)

Year	All species	Softwoods	Hardwoods
1967	2,947.4	2,246.2	701.2
1968	3,008.6	2,331.8	676.8
1969	2,909.2	2,082.6	826.6
1970	3,469.0	2,508.1	960.9
1971	3,097.0	2,194.7	902.3
5-year total	15,431.2	11,363.4	4,067.8
1972	2,694.5	1,852.0	842.5
1973	3,455.2	2,376.8	1,078.4
1974	3,721.0	2,562.9	1,158.1
1975	2,866.8	2,030.9	835.9
1976	3,286.6	2,306.9	979.7
5-year total	16,024.1	11,129.5	4,894.6
1977	3,710.2	2,753.6	956.6
1978	3,955.0	2,844.8	1,110.2
1979	3,958.6	2,733.9	1,224.7
1980	4,220.9	2,969.2	1,251.7
1981	4,255.0	2,953.4	1,301.6
5-year total	20,099.7	14,254.9	5,844.8

[a]Includes production from both roundwood and chips from manufacturing residues.

Table 20.—Pulpwood harvest, by softwoods and hardwoods, and geographic unit, Maine, 1967–81 (In thousands of rough cords)

Species group and geographic unit	1967	1968	1969	1970	1971	1972	1973	1974
Softwoods								
Aroostook County	495.2	480.2	450.3	637.1	528.8	428.4	565.9	544.7
Capital Region	153.0	132.6	118.5	129.7	126.3	100.9	81.7	117.0
Casco Bay	73.5	66.9	64.1	69.8	66.5	71.3	67.4	78.0
Hancock County	60.8	50.9	49.6	68.8	55.4	46.3	49.7	64.8
Penobscot County	281.0	260.0	241.0	328.2	284.7	262.4	230.6	264.5
Piscataquis County	346.9	392.2	266.9	367.6	340.3	201.6	442.3	455.2
Somerset County	365.6	295.8	314.5	303.2	217.9	181.9	376.4	395.1
Washington County	218.3	315.4	243.9	259.2	244.9	221.7	236.9	266.7
Western Maine	173.4	158.3	141.5	156.6	130.1	119.8	94.8	121.7
Total softwoods	2,167.7	2,152.3	1,890.3	2,320.2	1,994.9	1,634.3	2,145.7	2,307.7
Hardwoods								
Aroostook County	66.5	55.9	72.2	69.1	74.5	75.3	83.9	133.9
Capital Region	86.4	84.5	75.3	86.5	73.7	75.4	75.2	79.6
Casco Bay	69.2	69.8	70.1	69.2	55.4	56.9	91.9	62.7
Hancock County	25.0	4.7	15.5	17.0	22.1	18.2	33.5	20.5
Penobscot County	109.5	115.4	149.6	147.5	137.3	127.3	147.4	133.1
Piscataquis County	52.0	47.2	49.0	80.6	81.6	65.8	90.0	102.0
Somerset County	56.8	38.2	71.1	67.5	82.7	61.7	125.2	117.4
Washington County	31.1	24.0	78.9	101.3	86.9	79.1	134.2	169.4
Western Maine	179.4	206.5	196.2	262.0	227.8	210.1	213.7	258.1
Total hardwoods	675.9	646.2	777.9	900.7	842.0	769.8	995.0	1,076.7
All species	2,843.6	2,798.5	2,668.2	3,220.9	2,836.9	2,404.1	3,140.7	3,384.4

	1975	1976	1977	1978	1979	1980	1981	All Years
Softwoods								
Aroostook County	299.6	448.4	520.6	551.3	505.1	608.1	497.8	7,561.5
Capital Region	93.1	125.9	111.6	159.6	129.4	163.2	153.3	1,895.8
Casco Bay	72.7	81.4	71.1	83.6	80.1	96.4	81.5	1,124.3
Hancock County	35.5	38.7	32.0	45.6	36.6	29.4	41.0	705.1
Penobscot County	215.8	197.9	160.4	202.5	221.8	228.8	228.3	3,607.9
Piscataquis County	370.5	338.9	373.7	442.8	428.3	467.0	410.2	5,644.4
Somerset County	279.5	292.7	388.6	364.5	356.1	414.0	430.3	4,976.1
Washington County	242.8	212.0	170.4	145.4	126.5	97.1	78.9	3,080.1
Western Maine	129.0	153.5	144.4	163.1	188.4	200.6	277.3	2,352.5
Total softwoods	1,738.5	1,889.4	1,972.8	2,158.4	2,072.3	2,304.6	2,198.6	30,947.7
Hardwoods								
Aroostook County	69.5	118.7	105.5	100.0	110.4	84.7	103.0	1,323.1
Capital Region	57.2	67.3	62.1	73.5	69.9	71.1	64.5	1,102.2
Casco Bay	39.7	55.0	40.7	45.9	39.3	38.9	34.4	839.1
Hancock County	20.3	18.6	16.7	27.2	46.8	35.4	38.4	359.9
Penobscot County	97.7	90.8	70.6	83.0	117.0	110.3	172.4	1,808.9
Piscataquis County	81.2	92.8	119.9	139.0	152.4	163.0	177.8	1,494.3
Somerset County	51.5	66.1	51.3	89.7	121.0	114.0	150.7	1,264.9
Washington County	123.0	141.1	117.2	185.4	189.4	268.6	202.7	1,932.3
Western Maine	213.3	262.7	253.4	282.7	259.4	257.4	275.1	3,557.8
Total hardwoods	753.4	913.1	837.4	1,026.4	1,105.6	1,143.4	1,219.0	13,682.5
All species	2,491.9	2,802.5	2,810.2	3,184.8	3,177.9	3,448.0	3,417.6	44,630.2

Table 21.—Veneer log production[a] in Maine, by species and consuming state, 1981 (In thousands of board feet)[b]

Species	Cut and retained in state	Exported to:			Total production
		Vermont	New Brunswick	Quebec	
Cedar	—	—	792	—	792
White pine	—	—	157	—	157
Spruce	—	—	7,167[c]	—	7,167
Total softwoods	—	—	8,116	—	8,116
Ash	23	—	—	—	23
Aspen	—	—	16	1,242	1,258
Beech	124	—	—	4	128
White birch	21,820	61	16	462	22,359
Yellow birch	2,485	20	—	1,689	4,194
Hard maple	1,328	—	—	736	2,064
Soft maple	154	—	—	—	154
Red oak	—	102	33	—	135
Other hardwoods[d]	—	12	—	—	12
Total hardwoods	25,934	195	65	4,133	30,327
All species	25,934	195	8,181	4,133	38,443

[a]Veneer logs handled by brokers for overseas shipment are not included.
[b]International ¼-inch rule.
[c]Includes 2,000 board feet of tamarack.
[d]Includes miscellaneous hardwoods such as basswood and other less significant species.

Table 22.—Veneer log receipts in Maine, by species and producing state, 1981 (In thousands of board feet)[a]

Species	Cut and retained in state	Imported from:					Total receipts
		New Hampshire	New York	Vermont	New Brunswick	Quebec	
Ash	23	—	—	—	—	—	23
Beech	124	—	—	—	—	—	124
White birch	21,820	1,176	20	321	1,143	769	25,249
Yellow birch	2,485	59	59	59	331	—	2,993
Hard maple	1,328	—	—	—	—	—	1,328
Soft maple	154	—	—	—	—	—	154
All species	25,934	1,235	79	380	1,474	769	29,871

[a]International ¼-inch rule.

Table 23.—Veneer log production[a] and receipts in Maine, for selected years, 1963-81 (In thousands of board feet)[b]

Year	Production	Receipts
1963	51.3	42.9
1968	49.7	44.7
1972	38.0	41.0
1976	40.3	39.0
1980	39.9	27.0
1981	38.4	29.9

[a]Veneer logs handled by brokers for overseas shipment are not included.
[b]International ¼-inch rule.

Table 24.—Production and disposition of manufacturing residues, by type of use and type of residue, Maine, 1981

Disposition	Type of residue			All types
	Bark	Coarse[a]	Fine[b]	
	(In thousands of ft³)			
	LUMBER[c]			
Fiber[d]	46	18,966	7,299	26,311
Agriculture[e]	1,400	9	4,250	5,659
Industrial fuel	9,250	2,035	4,207	15,492
Domestic fuel	328	798	10	1,136
Other[f]	1	1	254	256
Total, used	11,025	21,809	16,020	48,854
Unused	419	114	205	738
	VENEER			
Fiber	—	209	—	209
Agriculture	—	—	—	—
Industrial fuel	577	567	1,503	2,647
Domestic fuel	2	35	—	37
Other	—	24	—	24
Total, used	579	835	1,503	2,917
Unused	5	—	66	71
	OTHER INDUSTRIES[g]			
Fiber	—	1,935	309	2,244
Agriculture	86	10	867	963
Industrial fuel	1,276	1,328	1,826	4,430
Domestic fuel	187	627	101	915
Other	—	2	84	86
Total, used	1,549	3,902	3,187	8,638
Unused	171	286	214	671
	ALL INDUSTRIES			
Fiber	46	21,110	7,608	28,764
Agriculture	1,486	19	5,117	6,622
Industrial fuel	11,103	3,930	7,536	22,569
Domestic fuel	517	1,460	111	2,088
Other	1	27	338	366
Total, used	13,153	26,546	20,710	60,409
Unused	595	400	485	1,480

Disposition	Type of residue			All types
	Bark	Coarse[a]	Fine[b]	
	(In thousands m³)			
	LUMBER[c]			
Fiber[d]	1.3	537.1	206.7	745.1
Agriculture[e]	39.6	.3	120.3	160.2
Industrial fuel	262.0	57.6	119.1	438.7
Domestic fuel	9.3	22.6	.3	32.2
Other[f]	*	*	7.2	7.2
Total, used	312.2	617.6	453.6	1,383.4
Unused	11.9	3.2	5.8	20.9
	VENEER			
Fiber	—	5.9	—	5.9
Agriculture	—	—	—	—
Industrial fuel	16.3	16.0	42.6	74.9
Domestic fuel	.1	1.0	—	1.1
Other	—	.7	—	.7
Total, used	16.4	23.6	42.6	82.6
Unused	0.1	—	1.9	2.0
	OTHER INDUSTRIES[g]			
Fiber	—	54.8	8.7	63.5
Agriculture	2.4	.3	24.6	27.3
Industrial fuel	36.1	37.6	51.7	125.4
Domestic fuel	5.3	17.7	2.9	25.9
Other	—	.1	2.3	2.4
Total, used	43.8	110.5	90.2	244.5
Unused	4.8	8.1	6.1	19.0
	ALL INDUSTRIES			
Fiber	1.3	597.8	215.4	814.5
Agriculture	42.0	.6	144.9	187.5
Industrial fuel	314.4	111.2	213.4	639.0
Domestic fuel	14.7	41.3	3.2	59.2
Other	*	.8	9.5	10.3
Total, used	372.4	751.7	586.4	1,710.5
Unused	16.8	11.3	13.8	41.9

[a]Includes slabs, edgings, trimmings, veneer cores, and other material suitable for chipping.
[b]Includes sawdust, shavings, and other material considered unsuitable for chipping.
[c]Includes lumber products sawn from sawlogs and boltwood.
[d]Includes woodpulp and composite products.
[e]Includes livestock bedding and farm and horticultural mulch.
[f]Includes miscellaneous uses such as small dimension and speciality items.
[g]Includes cabin logs, cooperage logs and bolts, poles, piling, landscape and railroad ties, and stock for clothespins, miscellaneous dimension, shingles, tool handles and small poles, and numerous other items; excludes the woodpulp industry.
*Less than 50 m³.

Table 25.—Volume of unused sawmill residues,[a] by geographic unit, softwoods and hardwoods, and type of residue, Maine, 1981

Geographic unit	Softwoods			Hardwoods			All species		
	Bark	Coarse	Fine	Bark	Coarse	Fine	Bark	Coarse	Fine
	Thousand ft³								
Aroostook County	241	48	63	2	—	4	243	48	67
Capital Region	45	6	39	11	7	20	56	13	59
Casco Bay	23	22	29	2	1	17	25	23	46
Hancock County	2	6	18	—	—	7	2	6	25
Penobscot County	70	7	—	6	—	—	76	7	—
Piscataquis County	4	9	—	—	—	—	4	9	—
Somerset County	2	4	1	—	—	—	2	4	1
Washington County	2	2	—	1	2	—	3	4	—
Western Maine	8	—	4	—	—	3	8	—	7
Total	397	104	154	22	10	51	419	114	205
	Thousand m³								
Aroostook County	6.8	1.3	1.8	0.1	—	0.1	6.9	1.3	1.9
Capital Region	1.3	.2	1.1	.3	0.2	.6	1.6	.4	1.7
Casco Bay	.6	.6	.8	*	.1	.5	.6	.7	1.3
Hancock County	.1	.2	.5	—	—	.2	.1	.2	.7
Penobscot County	2.0	.2	—	.2	—	—	2.2	.2	—
Piscataquis County	.1	.2	—	—	—	—	.1	.2	—
Somerset County	.1	.1	*	—	—	—	.1	.1	*
Washington County	.1	.1	—	*	*	—	.1	.1	—
Western Maine	.2	—	.1	—	—	.1	.2	—	.2
Total	11.3	2.9	4.3	0.6	0.3	1.5	11.9	3.2	5.8

[a]Includes residues from sawlogs and boltwood sawn into lumber products.
*Less than 100 m³.

Nevel, Robert L., Jr.; Lammert, Peter R.; Widmann, Richard H. **Maine timber industries—a periodic assessment of timber output.** Resour. Bull. NE-83. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1985. 42 p.

Reports the results of a survey of the timber industries in Maine; contains statistics on industrial timber production and receipts, and production and disposition of the manufacturing residues. Comparisons are made with the most recent data, and trends in industrial wood output are noted. Includes 25 statistical tables.

ODC 792:83(741)

Keywords: Timber output, wood residue use, Maine manufacturers, production statistics.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1985—505-028/548

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United States
Department of
Agriculture

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Experiment
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Resource
Bulletin NE-84

1985

Pulpwood Production in the Northeast - 1983

Richard H. Widmann

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Pulpwood Production in the Northeast--1983

Richard H. Widmann

Abstract

This annual assessment of the pulpwood production and receipts for the 14 states in the Northeast region shows that in 1983 total production reached 6,673,800 cords. This was up 3 percent (221,600 cords) from 1982. The roundwood portion increased by less than 1 percent to 6,330,000 cords, whereas the residue portion rose by 10 percent to 343,800 cord equivalents. The receipts of pulpwood at the 42 mills in the region set a new high of 9,253,700 cords consumed. This report is based on a canvass of all pulpmills that use roundwood or wood residue from the Northeast as a basic raw material for paper, insulation board, and hardboard products.

The Author

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Manuscript received for publication 3 January 1985

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Introduction

This annual report is based on a canvass of all pulpmills in the Northeast that use wood as a basic raw material to make pulp for the production of paper, insulation board, and hardboard products. Shipments outside the Northeast Region are traced by exchanging information with neighboring forest experiment stations that conduct similar canvasses, and by canvassing pulpmills in adjacent Canadian provinces.

All statistics for production are based on mill receipts of roundwood and manufacturing plant residues.[1] These receipts are subject to year-to-year fluctuations in wood inventory. Mill receipts of pulpwood from roundwood are reported by county where harvested. However, pulpwood from plant residues cannot be traced beyond the state where the residues were produced. Some of the logs from which the residues came probably were harvested in states other than the one in which they were processed.

Wood not reported in standard cords on pulpwood production questionnaires is converted. Conversion factors for a specific mill, if available, are used. Otherwise, general conversion factors for the Northeast are used.

Highlights

The production of pulpwood in the 14 Northeastern states--(Connecticut, Delaware, Kentucky, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, and West Virginia)--increased by 3 percent in 1983. This was a 221,600 cord increase in pulpwood production and a continuation of the record high levels of production begun in 1978. Most of the increase came from increased production of manufacturing residues for pulp. The production of roundwood was stable with 6,330,000 cords produced. This was only 300 cords more than that produced in 1982 (Fig. 1).

All of the 13 states that produced pulpwood except Maine and West Virginia increased production. These two states had a combined drop of 253,500 cords while the 11 other states had a combined increase of 475,100 cords. Kentucky had the largest increase with 1983 production topping 1982 production by 156,200 cords, followed by New York with a 145,300 cord increase, and Pennsylvania with a 78,900 cord increase. About 38 percent of the increase in these three states was from roundwood and 62 percent from residue.

Percent Change in Total Production Compared to 1982:

Connecticut	+15
Delaware	+ 2
Kentucky	+43
Maine	- 4
Maryland	+ 7
Massachusetts	+70
New Hampshire	0
New Jersey	+56
New York	+19
Ohio	+ 9
Pennsylvania	+ 8
Rhode Island	--
Vermont	+ 4
West Virginia	-15

Although the total production of roundwood changed very little since 1982, a significant shift occurred from softwood to hardwood. Total production of softwood roundwood dropped by 7 percent or 205,500 cords while hardwood roundwood increased by 6 percent or 205,800 cords. In the softwood group, spruce and fir were down by 13 percent, pine up by 1 percent, and hemlock and tamarack up by 17 percent.

[1] Definitions of terms used in this report are in the Appendix. Note that whole-tree chips are included as roundwood.

Figure 1.--Total production by roundwood and manufacturing residues for the Northeast.

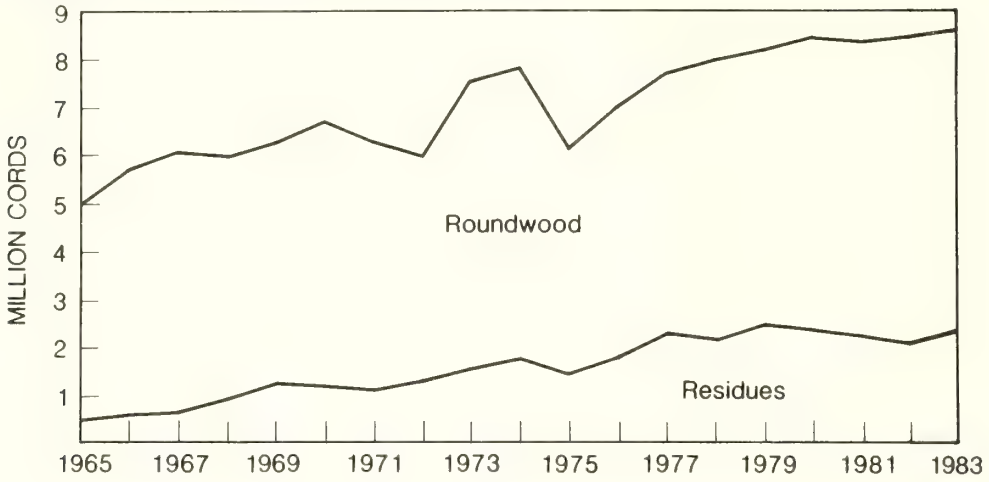
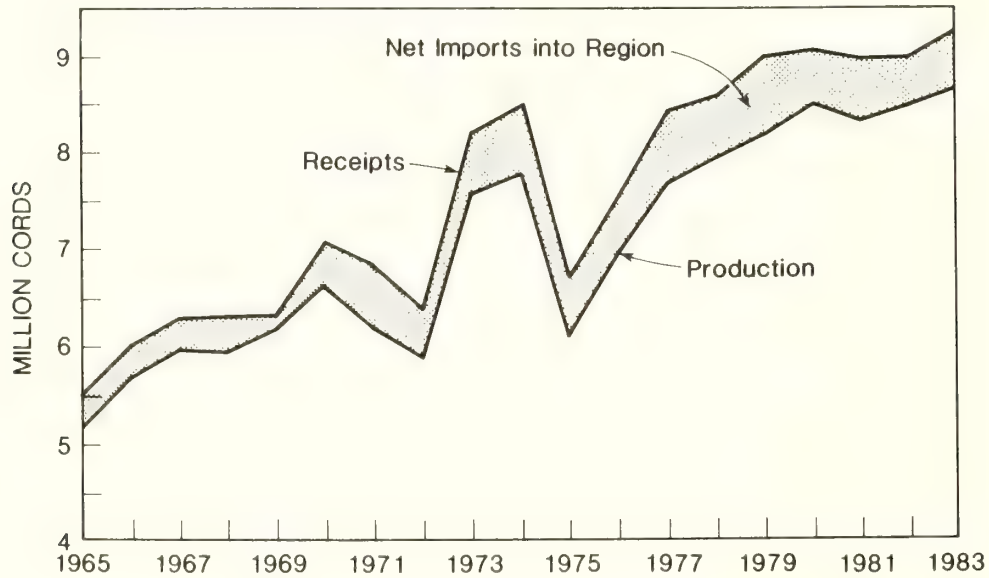


Figure 2.--Pulpwood production and receipts for the Northeast.



The largest decrease in the spruce and fir harvest occurred in Maine with a 273,800 cord decrease followed by Vermont with an 11,000 cord decrease and New Hampshire with a 6,900 cord decrease. New York, however, had a 13,700 cord increase in spruce and fir and also accounted for most of the increase in the hemlock and tamarack group.

The production of pulpwood from manufacturing residues was up by 10 percent in 1983 to 2,343,800 cord equivalents, the softwood portion of this was up by 15 percent and the hardwood portion up by 7 percent. Only three states showed decreases; Delaware down by 67 percent, Maine down by 1 percent, and West Virginia down by 23 percent. All the other states showed increases in residue production. Kentucky had the largest increase with 123,700 cord equivalents more than 1982 while West Virginia had the largest decrease with 43,300 cord equivalents less. Although total residues were down in Maine, the softwood portion was up and the hardwood portion was down, this is just the opposite of what roundwood did in the state.

The production of whole-tree chips for pulp increased by 56,700 to 847,847 cord equivalents. This was a continuation of the increases whole-tree chips have been making in the Northeast. Currently, these chips make up 10 percent of all pulpwood produced in the region. The largest increases in recent years have been in Maine where large quantities of whole-tree chips are also burned for energy. Chips for energy production are not included in this report.

Whole-tree chip production in the Northeast from 1977-83 was:

State[a]	1977	1978	1979	1980	1981	1982	1983
	Thousand cords						
Connecticut	--	--	0.1	--	--	--	--
Kentucky	3.2	2.4	--	5.8	3.9	0.2	--
Maine	--	--	--	3.2	--	306.2	355.2
Maryland	5.7	20.0	23.1	21.4	19.8	13.1	15.7
Massachusetts	--	--	--	--	--	1.1	--
New Hampshire	75.1	49.5	30.9	32.3	37.4	50.4	38.3
New Jersey	--	--	--	1.4	1.3	7.2	11.2
New York	18.4	19.4	14.0	13.8	5.8	--	--
Ohio	132.4	195.9	233.4	262.3	249.3	255.8	286.6
Pennsylvania	6.6	71.7	63.6	62.1	98.4	96.5	87.9
Vermont	23.6	17.6	40.3	44.4	33.2	33.9	32.9
West Virginia	9.0	.4	3.4	64.1	36.1	26.7	20.0
Total	274.0	376.9	408.8	510.8	485.2	791.1	847.8

[a]States with no whole-tree chip production are omitted.

ıe consumption of pulpwood at the 42 mills in the ›rtheast was 9,253,700 cords; up by 300,700 cords ·om 1982 (Fig. 2). This resulted in a 7 percent 35,400 cord) drop in pulpwood shipments out of ıe Northeast, a 4 percent (43,700 cord) increase ı shipments into the region, and the 3 percent ıcrease in total production previously discussed. ıring 1983, 1,042,300 cords were shipped into the gion and 462,400 cords were shipped out. though total consumption was up, the region's ills show that receipts of roundwood were down ,400 cords. This decrease was more than made up r by the 341,100 cord increase in residue ceipts from sawmills and other wood processors.

pendix

lfinition of Terms

rd. See Standard Cord.

rd equivalent. A unit of measure that is plied to forms of wood other than roundwood, ch as chips, slabs, edgings, and other nufacturing residues and equal to 85 cubic feet solid wood or 1 cord.

rdwoods. Dicotyledonous trees, usually oad-leaved and deciduous.

Nufacturing plant residues. Wood materials, sh as sawmill slabs and edgings, sawdust, veneer cppings and cores, post and pole trimming, and p.p screening generated from the manufacture of ndwood products.

Ppwood. Roundwood, whole-tree chips, or nufacturing plant residues that are used for the p›duction of woodpulp.

P pwood production. Roundwood and manufacturing p nt residues used to make woodpulp. These are e her harvested or generated in the state or r ion.

Pulpwood receipts. Pulpwood received at woodpulp mills. These can originate from outside the state or region.

Pulpwood imports. Pulpwood receipts originating from outside the Northeast (14-state region).

Roundwood products. Logs, bolts, total-tree chips, mine timbers, fenceposts, poles, and similar timber products generated by harvesting trees for industrial or consumer use.

Softwoods. Coniferous trees, usually evergreen with needles or scalelike leaves.

Standard cord. A unit of measure for stacked bolts of wood, encompassing 128 cubic feet of wood, bark, and air space. In the Northeast, the measure refers to a stack of wood containing 85 cubic feet, or 2.41 cubic meters, of solid wood. A standard cord commonly is referred to as a cord, as in this report. This is not the same as a face cord, commonly used in firewood marketing.

Timber products output. Production total from timber harvest and plant byproducts.

Whole-tree chips. Unbarked wood chips generated from the aboveground portion of a tree, including bolewood, limbs, and leaves.

Metric Equivalents

One standard cord = 85 cubic feet (solid wood) = 2.41 cubic meters (solid wood).

One cubic foot (ft^3) = 28,317 cubic centimeters (cm^3) = 0.028 cubic meters (m^3)

Conversion Factors Used for Green Roundwood

1 ton spruce-fir = 0.5556 cords
1 ton hemlock-tamarack = 0.5000 cords
1 ton pine (New England, New York, and Canada) = 0.5263 cords
1 ton aspen--yellow-poplar = 0.5263 cords
1 ton oak-hickory = 0.3571 cords
1 ton other hardwoods = 0.3846 cords

Index to Tables

1. Total production of pulpwood in the Northeast, by state and source, 1983.

2. Production and receipts of pulpwood in the Northeast, by state and softwood and hardwood, 1983.

3. Pulpwood production from roundwood in the Northeast, by state, softwood and hardwood, and destination of shipment, 1983.

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17. Bark generated from roundwood pulpwood in the Northeast, by state and species group, 1983.

Table 1.-Total production of pulpwood in the Northeast, by state and source, 1983

(In thousands of standard cords)[a]

State	From roundwood	From manufacturing residues	From all sources
Connecticut	1.5	7.8	9.3
Delaware	28.0	.5	28.5
Kentucky	135.6	387.1	522.7
Maine	3,305.6	720.7	4,026.3
Maryland	155.0	150.5	305.5
Massachusetts	5.1	34.6	39.7
New Hampshire	328.2	195.3	523.5
New Jersey	11.2	-	11.2
New York	721.6	206.2	927.8
Ohio	350.9	110.9	461.8
Pennsylvania	731.8	326.0	1,057.8
Rhode Island	-	-	-
Vermont	308.9	61.4	370.3
West Virginia	246.6	142.8	389.4
Total	6,330.0	2,343.8	8,673.8

[a]Rough wood basis, equivalent to 85 ft^3 solid wood.

Table 2.-Production and receipts of pulpwood in the Northeast, by state and softwood and hardwood, 1983

(In thousands of standard cords)

State	Produced in state		Received in state		Net export(+) import(-)
	Softwood	Hardwood	Softwood	Hardwood	
Connecticut	3.7	5.6	-	-	+ 9.3
Delaware	26.4	2.1	-	-	+ 28.5
Kentucky	87.1	435.6	261.4	764.9	-503.6
Maine	2,585.7	1,440.6	2,798.1	1,647.9	-419.7
Maryland	200.3	105.2	(D)	(D)	(D)
Massachusetts	31.1	8.6	-	-	+ 39.7
New Hampshire	289.7	233.8	152.6	331.3	+ 39.6
New Jersey	9.4	1.8	23.2	6.3	- 18.3
New York	453.9	473.9	592.8	337.4	- 2.4
Ohio	1.1	460.7	2.9	570.4	-111.5
Pennsylvania	75.4	982.4	218.7	1,060.8	-221.7
Rhode Island	-	-	-	-	-
Vermont	193.0	177.3	(D)	(D)	(D)
West Virginia	52.3	337.1	-	-	+389.4
Total	4,009.1	4,664.7	4,244.6	5,009.1	-634.5

(D) Data withheld to avoid disclosure for individual mills.

Table 3.-Pulpwood production from roundwood in the Northeast, by state, softwood and hardwood, and destination of shipment, 1983

(In thousands of standard cords)

State	Softwood				Hardwood				All species
	Retained in state	Shipped to other states		Total	Retained in state	Shipped to other states		Total	
		In Northeast	Outside Northeast			In Northeast	Outside Northeast		
Connecticut	-	1.5	-	1.5	-	-	-	-	1.5
Delaware	-	20.3	6.1	26.4	-	1.6	-	1.6	28.0
Kentucky	4.5	-	15.0	19.5	93.6	16.9	5.6	116.1	135.6
Maine	1,874.6	21.1	29.4	1,925.1	1,353.2	27.3	-	1,380.5	3,305.6
Maryland	21.9	41.3	29.8	93.0	57.7	4.3	-	62.0	155.0
Massachusetts	-	4.8	-	4.8	-	.3	-	.3	5.1
New Hampshire	41.8	96.0	1.5	139.3	129.2	59.7	-	188.9	328.2
New Jersey	9.4	-	-	9.4	1.8	-	-	1.8	11.2
New York	358.3	-	2.8	361.1	237.8	35.6	87.1	360.5	721.6
Ohio	-	1.1	-	1.1	349.8	-	-	349.8	350.9
Pennsylvania	37.0	27.0	-	64.0	636.4	31.4	-	667.8	731.8
Rhode Island	-	-	-	-	-	-	-	-	-
Vermont	17.8	137.0	-	154.8	-	154.1	-	154.1	308.9
West Virginia	-	42.5	7.3	49.8	-	99.1	97.7	196.8	246.6
Total	2,365.3	392.6	91.9	2,849.8	2,859.5	430.3	190.4	3,480.2	6,330.0

Table 4.-Pulpwood chip production from manufacturing residues in the Northeast, by state, softwood and hardwood, and destination of shipment, 1983[a]

(In thousands of standard-cord equivalents)

State	Softwood				Hardwood				All species
	Produced and retained in state	Shipped to other states		Total	Produced and retained in state	Shipped to other states		Total	
		In Northeast	Outside Northeast			In Northeast	Outside Northeast		
Connecticut	-	2.2	-	2.2	-	5.6	-	5.6	7.8
Delaware	-	-	-	-	-	.5	-	.5	.5
Kentucky	61.1	-	6.5	67.6	235.6	34.7	49.2	319.5	387.1
Maine	622.9	2.0	35.7	660.6	57.0	3.1	-	60.1	720.7
Maryland	15.3	70.6	21.4	107.3	6.4	36.8	-	43.2	150.5
Massachusetts	-	26.3	-	26.3	-	8.3	-	8.3	34.6
New Hampshire	64.7	85.7	-	150.4	38.8	6.1	-	44.9	195.3
New Jersey	-	-	-	-	-	-	-	-	-
New York	87.6	5.2	-	92.8	50.9	57.3	5.2	113.4	206.2
Ohio	-	-	-	-	110.1	.8	-	110.9	110.9
Pennsylvania	7.9	3.5	-	11.4	266.5	48.1	-	314.6	326.0
Rhode Island	-	-	-	-	-	-	-	-	-
Vermont	-	38.2	-	38.2	-	23.2	-	23.2	61.4
West Virginia	-	.7	1.8	2.5	-	80.0	60.3	140.3	142.8
Total	859.5	234.4	65.4	1,159.3	765.3	304.5	114.7	1,184.5	2,343.8

[a]Includes sawmill slabs and edgings, sawdust, veneer cores, and post and piling trimmings.

Table 5.-Pulpwood receipts from roundwood in the Northeast, by state, softwood and hardwood, and origin of shipment, 1983

(In thousands of standard cords)

State[a]	Softwood				Hardwood				All species
	Cut in state	Received from other states		Total	Cut in state	Received from other states		Total	
		In Northeast	Outside Northeast			In Northeast	Outside Northeast		
Kentucky	4.5	-	73.2	77.7	93.6	-	182.2	275.8	353.5
Maine	1,874.6	121.9	38.1	2,034.6	1,353.2	65.9	162.1	1,581.2	3,615.8
Maryland	21.9	(D)	(D)	(D)	57.7	(D)	(D)	(D)	(D)
New Hampshire	41.8	38.1	1.2	81.1	129.2	157.1	-	286.3	367.4
New Jersey	9.4	-	-	9.4	1.8	-	-	1.8	11.2
New York	358.3	103.1	.4	461.8	237.8	18.4	-	256.2	718.0
Ohio	-	-	-	-	349.8	35.3	-	385.1	385.1
Pennsylvania	37.0	63.1	46.2	146.3	636.4	41.6	14.1	692.1	838.4
Vermont	17.8	(D)	(D)	(D)	-	(D)	(D)	(D)	(D)
Total	2,365.3	392.6	212.4	2,970.3	2,859.5	430.3	371.3	3,661.1	6,631.4

[a]States with no pulpmills are omitted. (D)Data withheld to avoid disclosure for individual mills.

Table 6.-Pulpwood chip receipts from manufacturing residues in the Northeast, by state, softwood and hardwood, and origin of shipment, 1983[a]

(In thousands of standard cord equivalents)

State[b]	Softwood				Hardwood				All species
	Produced in state	Received from other states		Total	Produced in state	Received from other states		Total	
		In Northeast	Outside Northeast			In Northeast	Outside Northeast		
Kentucky	61.1	-	122.6	183.7	235.6	-	253.5	489.1	672.8
Maine	622.9	106.9	33.7	763.5	57.0	9.7	-	66.7	830.2
Maryland	15.3	(D)	(D)	(D)	6.4	(D)	(D)	(D)	(D)
New Hampshire	64.7	5.9	.9	71.5	38.8	6.2	*	45.0	116.5
New Jersey	-	13.8	-	13.8	-	4.5	-	4.5	18.3
New York	87.6	41.9	1.5	131.0	50.9	30.3	-	81.2	212.2
Ohio	-	2.9	-	2.9	110.1	67.5	7.7	185.3	188.2
Pennsylvania	7.9	61.7	2.8	72.4	266.5	90.9	11.3	368.7	441.1
Vermont	-	(D)	(D)	(D)	-	(D)	(D)	(D)	(D)
Total	859.5	234.4	180.4	1,274.3	765.3	304.5	278.2	1,348.0	2,622.3

[a]Includes sawmill slabs and edgings, sawdust, [b]States with no pulpmills are omitted. *Less than 50 cords.

Table 7.-Pulpwood production from roundwood received from states outside the Northeast, by state (or province) of origin and softwood and hardwood, 1983

(In thousands of standard cords)

Receiving state[a]	State or province of origin	Softwood	Hardwood	All species
Kentucky	Illinois	19.5	21.7	41.2
	Indiana	-	11.9	11.9
	Mississippi	40.3	82.8	123.1
	Missouri	1.5	13.4	14.9
	Tennessee	11.9	52.4	64.3
Maine	New Brunswick	-	141.6	141.6
	Quebec	38.1	20.5	58.6
Maryland	Virginia	53.3	12.9	66.2
New Hampshire	Quebec	1.2	-	1.2
New York	Quebec	.4	-	.4
Pennsylvania	Virginia	46.2	14.1	60.3
All States		212.4	371.3	583.7

[a]States with no extraregional receipts are omitted.

Table 8.-Pulpwood chip receipts from wood-using manufacturing plants outside the Northeast, by state (or province) of origin and softwood and hardwood, 1983[a]

(In thousands of standard cord equivalents)

Receiving state[b]	State or province of origin	Softwood	Hardwood	All species
Kentucky	Alabama	-	2.3	2.3
	Illinois	6.8	9.3	16.1
	Indiana	57.3	77.8	135.1
	Mississippi	54.4	29.9	84.3
	Missouri	2.6	54.7	57.3
	Tennessee	1.5	79.5	81.0
Maine	New Brunswick	5.3	-	5.3
	Quebec	28.4	-	28.4
Maryland	Virginia	18.9	5.7	24.6
New Hampshire	Quebec	.9	*	.9
New York	Quebec	1.5	-	1.5
Ohio	Indiana	-	7.7	7.7
Pennsylvania	Virginia	2.8	11.3	14.1
All states		180.4	278.2	458.6

[a]Includes sawmill slabs and edgings, sawdust, veneer cores, and post and piling trimmings.
[b]States with no extraregional receipts are omitted.
*Less than 50 cords.

Table 9.-Pulpwood production from roundwood in the Northeast, by state and species group, 1983

(In thousands of standard cords)

State	Softwood				Hardwood				All species
	Spruce and fir	Hemlock and tamarack	Pine	Total	Aspen and yellow-poplar	Oak and hickory	Other hardwood	Total	
Connecticut	-	1.4	0.1	1.5	-	-	-	-	1.5
Delaware	-	-	26.4	26.4	-	-	1.6	1.6	28.0
Kentucky	-	-	19.5	19.5	8.4	90.3	17.4	116.1	135.6
Maine	1,541.9	180.1	203.1	1,925.1	197.4	10.6	1,172.5	1,380.5	3,305.6
Maryland	-	.5	92.5	93.0	-	30.1	31.9	62.0	155.0
Massachusetts	.1	4.5	.2	4.8	*	-	.3	.3	5.1
New Hampshire	77.1	33.5	28.7	139.3	17.2	.7	171.0	188.9	328.2
New Jersey	-	-	9.4	9.4	-	1.8	-	1.8	11.2
New York	119.1	174.3	67.7	361.1	29.4	6.4	324.7	360.5	721.6
Ohio	-	-	1.1	1.1	34.8	213.0	102.0	349.8	350.9
Pennsylvania	-	11.9	52.1	64.0	35.1	247.5	385.2	667.8	731.8
Rhode Island	-	-	-	-	-	-	-	-	-
Vermont	95.3	44.5	15.0	154.8	11.9	.6	141.6	154.1	308.9
West Virginia	.5	3.0	46.3	49.8	*	56.3	140.5	196.8	246.6
Total	1,834.0	453.7	562.1	2,849.8	334.2	657.3	2,488.7	3,480.2	6,330.0

*Less than 50 cords.

Table 10.-Pulpwood production from roundwood in Kentucky and Ohio, by county and species group, 1983

(In thousands of standard cords)

County[a]	Softwood				Hardwood				All species
	Spruce and fir	Hemlock and tamarack	Pine	Total	Aspen and yellow-poplar	Oak and hickory	Other hardwood	Total	
					KENTUCKY				
Ballard	-	-	-	-	1.0	2.0	1.5	4.5	4.5
Caldwell	-	-	1.7	1.7	.6	2.0	1.6	4.2	5.9
Calloway	-	-	-	-	-	.9	.4	1.3	1.3
Carlisle	-	-	-	-	.2	.5	.4	1.1	1.1
Carter	-	-	-	-	1.1	4.3	2.2	7.6	7.6
Casey	-	-	.2	.2	-	5.5	-	5.5	5.7
Clay	-	-	*	*	-	-	-	-	*
Crittenden	-	-	1.6	1.6	.8	1.9	1.4	4.1	5.7
Floyd	-	-	-	-	-	-	*	*	*
Fulton	-	-	-	-	.2	.5	.4	1.1	1.1
Graves	-	-	.5	.5	.7	2.1	1.4	4.2	4.7
Greenup	-	-	-	-	.5	2.4	1.3	4.2	4.7
Hickman	-	-	-	-	.5	1.1	.8	2.4	2.4
Knox	-	-	.2	.2	-	-	-	-	.2
Laurel	-	-	-	-	-	18.7	-	18.7	18.7
Lewis	-	-	-	-	.7	2.8	1.5	5.0	5.0
Livingston	-	-	.5	.5	.7	1.6	1.2	3.5	4.0
Lyon	-	-	.2	.2	1.1	2.2	1.7	5.0	5.2
McCracken	-	-	-	-	.3	.4	.4	1.1	1.1
McCreary	-	-	5.0	5.0	-	.5	-	.5	5.5
Nichols	-	-	-	-	-	39.2	-	39.2	39.2
Pulaski	-	-	.8	.8	-	-	-	-	.8
Wayne	-	-	*	*	-	-	-	-	*
Whitley	-	-	8.8	8.8	-	1.7	1.2	2.9	11.7
Total	-	-	19.5	19.5	8.4	90.3	17.4	116.1	135.6

(Continued

Table 10.-continued

County[a]	Softwood				Hardwood				All species
	Spruce and fir	Hemlock and tamarack	Pine	Total	Aspen and yellow-poplar	Oak and hickory	Other hardwood	Total	
					OHIO				
Adams	-	-	-	-	1.6	6.5	3.4	11.5	11.5
Ashland	-	-	-	-	-	.5	-	.5	.5
Athens	-	-	0.1	0.1	1.4	5.0	10.1	16.5	16.6
Belmont	-	-	-	-	-	4.8	-	4.8	4.8
Carroll	-	-	-	-	-	1.4	-	1.4	1.4
Columbiana	-	-	-	-	-	.3	-	.3	.3
Coshocton	-	-	-	-	-	13.6	-	13.6	13.6
Cuyahoga	-	-	-	-	-	.7	-	.7	.7
Fairfield	-	-	-	-	*	.2	.1	.3	.3
Guernsey	-	-	-	-	-	6.4	-	6.4	6.4
Hardin	-	-	-	-	-	*	-	*	*
Harrison	-	-	-	-	-	2.9	-	2.9	2.9
Hocking	-	-	*	*	3.0	10.6	10.3	23.9	23.9
Holmes	-	-	-	-	-	3.8	-	3.8	3.8
Huron	-	-	-	-	-	.2	-	.2	.2
Jackson	-	-	-	-	5.6	21.8	12.5	39.9	39.9
Jefferson	-	-	-	-	-	3.7	-	3.7	3.7
Knox	-	-	-	-	-	.1	-	.1	.1
Lake	-	-	-	-	-	.1	-	.1	.1
Lawrence	-	-	-	-	1.8	6.7	4.3	12.8	12.8
Licking	-	-	-	-	-	4.0	-	4.0	4.0
Medina	-	-	-	-	-	*	-	*	*
Meigs	-	-	1.0	1.0	.1	.1	.5	.7	1.7
Monroe	-	-	-	-	-	.2	-	.2	.2
Morgan	-	-	-	-	.1	.1	.4	.6	.6
Morrow	-	-	-	-	-	.2	-	.2	.2
Muskingum	-	-	-	-	*	8.0	*	8.0	8.0
Noble	-	-	-	-	-	9.8	-	9.8	9.8
Perry	-	-	-	-	.3	1.4	2.2	3.9	3.9
Pickaway	-	-	-	-	*	.1	.1	.2	.2
Pike	-	-	-	-	7.4	29.6	20.5	57.5	57.5
Richland	-	-	-	-	-	1.7	-	1.7	1.7
Ross	-	-	-	-	6.0	23.8	12.6	42.4	42.4
Scioto	-	-	-	-	2.7	10.8	5.7	19.2	19.2
Stark	-	-	-	-	-	1.9	-	1.9	1.9
Summit	-	-	-	-	-	.1	-	.1	.1
Tuscarawas	-	-	-	-	-	10.3	-	10.3	10.3
Vinton	-	-	-	-	4.8	19.5	19.0	43.3	43.3
Washington	-	-	-	-	*	1.6	.3	1.9	1.9
Wayne	-	-	-	-	-	.5	-	.5	.5
Total	-	-	1.1	1.1	34.8	213.0	102.0	349.8	350.9

[a]Counties with no production are omitted.
*Less than 50 cords.

Table 11.-Pulpwood production from roundwood in southern New England, by state, county, and species group, 1983

(In thousands of standard cords)

County[a]	Softwood				Hardwood				All specie
	Spruce and fir	Hemlock and tamarack	Pine	Total	Aspen and yellow-poplar	Oak and hickory	Other hardwood	Total	
				CONNECTICUT					
Hartford	-	0.6	-	0.6	-	-	-	-	0.
Litchfield	-	.8	*	.8	-	-	-	-	
Windham	-	-	0.1	.1	-	-	-	-	
Total	-	1.4	0.1	1.5	-	-	-	-	1.
				MASSACHUSETTS					
Barnstable	-	-	0.1	0.1	-	-	*	*	0.
Berkshire	0.1	2.2	.1	2.4	-	-	0.2	0.2	2.
Essex	-	-	-	-	*	-	.1	.1	
Franklin	-	1.4	-	1.4	-	-	-	-	1.
Hampden	-	.4	-	.4	-	-	-	-	
Hampshire	-	.5	-	.5	-	-	-	-	
Total	0.1	4.5	0.2	4.8	*	-	0.3	0.3	5.

[a]Counties with no production are omitted.
*Less than 50 cords.

Table 12.-Pulpwood production from roundwood in northern New England, by state, county, and species group, 1983

(In thousands of standard cords)

County[a]	Softwood				Hardwood				All species
	Spruce and fir	Hemlock and tamarack	Pine	Total	Aspen and yellow-poplar	Oak and hickory	Other hardwood	Total	
				MAINE					
ndroscoggin	3.1	4.3	19.5	26.9	1.8	0.2	6.6	8.6	35.5
roostook	318.2	7.6	.2	326.0	17.7	.1	95.3	113.1	439.1
umberland	2.1	5.0	16.8	23.9	1.3	*	19.0	20.3	44.2
ranklin	90.9	12.3	13.0	116.2	20.6	2.9	93.0	116.5	232.7
ancock	47.2	8.6	1.0	56.8	5.5	.1	24.7	30.3	87.1
ennebec	29.0	17.8	27.3	74.1	4.9	.7	30.2	35.8	109.9
nox	15.3	3.1	4.6	23.0	.3	.1	1.3	1.7	24.7
incoln	5.6	4.1	15.9	25.6	.7	.2	4.4	5.3	30.9
xford	76.3	21.4	23.7	121.4	29.8	1.3	135.0	166.1	287.5
enobscot	165.2	47.1	7.0	219.3	23.6	.9	150.9	175.4	394.7
iscataquis	270.2	20.1	6.8	297.1	8.1	1.2	142.4	151.7	448.8
agadahoc	1.7	1.6	6.6	9.9	.1	*	.9	1.0	10.9
omerset	443.0	16.4	33.4	492.8	16.8	2.5	258.0	277.3	770.1
aldo	23.7	3.4	4.8	31.9	2.6	.4	10.2	13.2	45.1
ashington	50.3	4.3	3.8	58.4	63.4	*	193.1	256.5	314.9
ork	.1	3.0	18.7	21.8	.2	*	7.5	7.7	29.5
Total	1,541.9	180.1	203.1	1,925.1	197.4	10.6	1,172.5	1,380.5	3,305.6
				NEW HAMPSHIRE					
elknap	0.1	0.4	1.8	2.3	-	-	0.9	0.9	3.2
arroll	6.0	10.0	17.7	33.7	1.0	0.1	42.6	43.7	77.4
eshire	*	4.7	.2	4.9	.1	-	.9	1.0	5.9
oos	62.3	3.0	1.4	66.7	12.9	.4	97.7	111.0	177.7
afton	8.6	10.0	4.0	22.6	3.2	.2	26.9	30.3	52.9
illsborough	.1	1.8	.1	2.0	-	-	.6	.6	2.6
errimack	*	.7	.5	1.2	*	-	.6	.6	1.8
ockingham	*	.2	.5	.7	*	-	.2	.2	.9
trafford	-	.3	2.5	2.8	-	-	.5	.5	3.3
illivan	*	2.4	*	2.4	-	-	.1	.1	2.5
Total	77.1	33.5	28.7	139.3	17.2	0.7	171.0	188.9	328.2
				VERMONT					
dison	0.4	0.2	*	0.6	-	-	1.6	1.6	2.2
nnington	1.5	1.5	1.3	4.3	*	-	4.9	4.9	9.2
ledonia	24.2	10.0	3.5	37.7	2.6	0.1	26.2	28.9	66.6
ittenden	1.4	.1	.9	2.4	*	-	.6	.6	3.0
lsex	37.8	3.6	2.0	43.4	7.5	.4	83.3	91.2	134.6
anklin	1.8	2.7	.4	4.9	.4	*	3.3	3.7	8.6
moille	2.4	3.1	.4	5.9	-	-	.6	.6	6.5
range	2.6	2.7	.2	5.5	*	-	.2	.2	5.7
leans	14.0	8.0	.5	22.5	1.3	.1	10.1	11.5	34.0
tland	1.5	2.6	3.0	7.1	-	-	1.0	1.0	8.1
shington	2.0	1.6	.2	3.8	*	-	.3	.3	4.1
ndham	2.1	5.7	1.4	9.2	*	-	6.6	6.6	15.8
ndsor	3.6	2.7	1.2	7.5	.1	-	2.9	3.0	10.5
tal	95.3	44.5	15.0	154.8	11.9	0.6	141.6	154.1	308.9

[a]Counties with no production are omitted.

*Less than 50 cords.

Table 13.-Pulpwood production from roundwood in New York, by county and species group, 1983

(In thousands of standard cords)

County[a]	Softwood				Hardwood				All specie
	Spruce and fir	Hemlock and tamarack	Pine	Total	Aspen and yellow-poplar	Oak and hickory	Other hardwood	Total	
Albany	0.6	*	0.3	0.9	-	-	0.1	0.1	1.
Allegany	-	-	2.8	2.8	-	-	-	-	2.
Broome	.1	1.3	*	1.4	1.3	1.5	4.6	7.4	8.
Cattaraugus	-	-	-	-	-	1.8	2.8	4.6	4.
Cayuga	.9	-	-	.9	.1	-	-	.1	1.
Chautauqua	-	-	-	-	-	-	10.1	10.1	10.
Chemung	-	-	-	-	.3	.4	1.9	2.6	2.
Chenango	7.2	4.8	.3	12.3	.4	.3	.3	1.0	13.
Clinton	6.6	7.3	.6	14.5	2.2	-	28.3	30.5	45.
Columbia	*	.8	-	.8	*	-	*	*	.
Cortland	1.0	1.3	-	2.3	*	-	*	*	2.
Delaware	3.3	5.1	.8	9.2	.2	.7	1.1	2.0	11.
Dutchess	*	.9	*	.9	-	-	*	*	.
Essex	3.9	13.5	9.6	27.0	2.9	-	33.9	36.8	63.
Franklin	28.7	11.6	2.2	42.5	.1	-	63.6	63.7	106.
Fulton	.3	6.8	4.6	11.7	.5	-	5.1	5.6	17.
Greene	.3	3.0	.1	3.4	-	-	-	-	3.
Hamilton	10.7	7.3	.5	18.5	.2	-	27.3	27.5	46.
Herkimer	13.4	7.2	2.7	23.3	*	-	5.2	5.2	28.
Jefferson	.3	.7	.1	1.1	6.4	-	*	6.4	7.
Lewis	13.5	9.4	1.2	24.1	7.2	-	21.9	29.1	53.
Madison	.3	.1	.4	.8	*	-	.1	.1	.
Montgomery	.7	.5	.4	1.6	.1	-	.1	.2	1.
Oneida	3.2	12.5	2.6	18.3	.3	-	2.1	2.4	20.
Onondaga	.2	-	-	.2	.1	-	-	.1	.
Oswego	.1	1.4	.3	1.8	.1	-	.6	.7	2.
Otsego	2.7	3.6	3.7	10.0	*	-	-	*	10.
Rensselaer	.1	3.3	1.2	4.6	*	-	3.5	3.5	8.
St. Lawrence	13.2	15.5	1.5	30.2	2.1	-	49.3	51.4	81.
Saratoga	.6	17.0	9.6	27.2	1.1	-	24.8	25.9	53.
Schenectady	-	-	*	*	*	-	-	*	.
Schoharie	6.7	3.1	3.5	13.3	*	-	-	*	13.
Schuyler	-	-	-	-	.9	.2	2.3	3.4	3.
Sullivan	*	.3	*	.3	-	-	-	-	.
Tioga	.1	-	*	.1	.8	1.5	2.8	5.1	5.
Tompkins	-	.1	-	.1	-	-	-	-	.
Ulster	-	2.2	-	2.2	-	-	-	-	2.
Warren	.4	23.9	15.8	40.1	1.5	-	23.7	25.2	65.
Washington	-	9.8	2.9	12.7	.6	-	9.2	9.8	22.
Total	119.1	174.3	67.7	361.1	29.4	6.4	324.7	360.5	721.

[a]Counties with no production are omitted.
*Less than 50 cords.

Table 14.-Pulpwood production from roundwood in Pennsylvania, by county and species group, 1983

(In thousands of standard cords)

County[a]	Softwood				Hardwood				All species
	Spruce and fir	Hemlock and tamarack	Pine	Total	Aspen and yellow-poplar	Oak and hickory	Other hardwood	Total	
Adams	-	-	0.4	0.4	-	2.0	1.1	3.1	3.5
Allegheny	-	-	-	-	-	.7	-	.7	.7
Armstrong	-	-	.2	.2	-	.2	.1	.3	.5
Bedford	-	0.5	7.5	8.0	-	15.9	12.7	28.6	36.6
Berks	-	-	*	*	-	-	-	-	*
Blair	-	.6	.4	1.0	-	5.4	4.5	9.9	10.9
Bradford	-	.7	3.5	4.2	6.6	9.3	25.9	41.8	46.0
Butler	-	-	-	-	-	6.4	2.3	8.7	8.7
Cambria	-	-	1.7	1.7	-	1.8	2.6	4.4	6.1
Cameron	-	-	-	-	-	14.3	1.7	16.0	16.0
Carbon	-	-	-	-	-	*	-	*	*
Centre	-	.6	1.9	2.5	-	5.4	.4	5.8	8.3
Clarion	-	-	.8	.8	-	4.2	4.1	8.3	9.1
Clearfield	-	3.3	8.0	11.3	-	11.9	3.2	15.1	26.4
Clinton	-	3.2	.6	3.8	1.7	12.6	4.2	18.5	22.3
Columbia	-	-	.1	.1	-	11.1	8.1	19.2	19.3
Crawford	-	-	-	-	-	-	1.9	1.9	1.9
Cumberland	-	-	.7	.7	-	4.3	2.2	6.5	7.2
Dauphin	-	-	.3	.3	-	1.7	.9	2.6	2.9
Elk	-	-	.7	.7	-	7.6	27.5	35.1	35.8
Erie	-	-	-	-	-	-	2.9	2.9	2.9
Fayette	-	-	.2	.2	-	.7	.9	1.6	1.8
Forest	-	-	-	-	-	8.4	22.2	30.6	30.6
Franklin	-	-	2.0	2.0	-	7.6	4.1	11.7	13.7
Fulton	-	-	4.6	4.6	-	5.1	4.1	9.2	13.8
Huntington	-	-	5.8	5.8	-	16.3	9.0	25.3	31.1
Indiana	-	-	2.4	2.4	-	-	.4	.4	2.8
Jefferson	-	.5	2.5	3.0	-	.1	6.8	6.9	9.9
Juniata	-	-	.6	.6	-	5.4	1.7	7.1	7.7
Lackawanna	-	-	-	-	.3	1.3	1.6	3.2	3.2
Lancaster	-	-	*	*	-	.1	*	.1	.1
Lebanon	-	-	*	*	-	.6	.3	.9	.9
Luzerne	-	.2	.3	.5	.2	1.2	1.3	2.7	3.2
Lycoming	-	1.5	.2	1.7	2.0	8.5	7.0	17.5	19.2
McKean	-	-	-	-	-	-	41.2	41.2	41.2
Mercer	-	-	-	-	-	.7	-	.7	.7
Mifflin	-	-	-	-	-	.1	.1	.2	.2
Monroe	-	-	.1	.1	-	1.3	.9	2.2	2.3
Northumberland	-	-	.8	.8	-	1.1	.6	1.7	2.5
Perry	-	-	.8	.8	-	1.0	.6	1.6	2.4
Pike	-	-	-	-	-	1.7	1.1	2.8	2.8
Potter	-	-	-	-	5.9	.4	48.1	54.4	54.4
Schuylkill	-	-	.6	.6	-	16.2	6.3	22.5	23.1
Snyder	-	-	.6	.6	-	*	*	*	.6
Somerset	-	-	.1	.1	-	1.8	2.0	3.8	3.9
Sullivan	-	.3	.3	.6	5.0	7.1	26.4	38.5	39.1
Susquehanna	-	.5	-	.5	3.5	8.1	13.9	25.5	26.0
Tioga	-	-	-	-	6.5	4.2	24.8	35.5	35.5
Union	-	-	*	*	-	3.3	2.3	5.6	5.6
Venango	-	-	-	-	-	9.4	3.3	12.7	12.7
Warren	-	-	*	-	-	7.2	28.2	35.4	35.4
Wayne	-	-	-	-	.5	1.7	2.4	4.6	4.6
Wyoming	-	-	-	-	2.9	7.7	15.0	25.6	25.6
York	-	-	3.4	3.4	-	4.4	2.3	6.7	10.1
Total	-	11.9	52.1	64.0	35.1	247.5	385.2	667.8	731.8

[a]Counties with no production are omitted.

*Less than 50 cords.

Table 15.-Pulpwood production from roundwood in Delaware, Maryland, and New Jersey, by county and species group, 1983

(In thousands of standard cords)

County[a]	Softwood				Hardwood				All species
	Spruce and fir	Hemlock and tamarack	Pine	Total	Aspen and yellow-poplar	Oak and hickory	Other hardwood	Total	
DELAWARE									
Kent	-	-	1.3	1.3	-	-	-	-	1.3
New Castle	-	-	*	*	-	-	-	-	*
Sussex	-	-	25.1	25.1	-	-	1.6	1.6	26.7
Total	-	-	26.4	26.4	-	-	1.6	1.6	28.0
MARYLAND									
Allegany	-	0.5	4.6	5.1	-	16.8	18.7	35.5	40.6
Anne Arundel	-	-	.1	.1	-	-	-	-	.1
Baltimore	-	-	3.5	3.5	-	.9	.4	1.3	4.8
Calvert	-	-	3.5	3.5	-	.9	-	.9	4.4
Caroline	-	-	.2	.2	-	-	*	*	.2
Carroll	-	-	.5	.5	-	.4	.2	.6	1.1
Charles	-	-	10.4	10.4	-	-	.6	.6	11.0
Dorchester	-	-	3.1	3.1	-	-	-	-	3.1
Frederick	-	-	-	-	-	.4	.2	.6	.6
Garrett	-	-	1.8	1.8	-	10.3	10.8	21.1	22.9
Harford	-	-	*	*	-	.1	*	.1	.1
Prince Georges	-	-	.3	.3	-	-	-	-	.3
St. Marys	-	-	22.2	22.2	-	-	.6	.6	22.8
Somerset	-	-	6.6	6.6	-	-	-	-	6.6
Washington	-	-	1.5	1.5	-	.3	.4	.7	2.2
Wicomico	-	-	27.0	27.0	-	-	-	-	27.0
Worcester	-	-	7.2	7.2	-	-	-	-	7.2
Total	-	0.5	92.5	93.0	-	30.1	31.9	62.0	155.0
NEW JERSEY									
Camden	-	-	2.5	2.5	-	0.5	-	0.5	3.0
Gloucester	-	-	2.8	2.8	-	.5	-	.5	3.3
Ocean	-	-	4.1	4.1	-	.8	-	.8	4.9
Total	-	-	9.4	9.4	-	1.8	-	1.8	11.2

[a]Counties with no production are omitted.
*Less than 50 cords.

Table 16.-Pulpwood production from roundwood in West Virginia, by county and species group, 1983

(In thousands of standard cords)

County[a]	Softwood				Hardwood				All species
	Spruce and fir	Hemlock and tamarack	Pine	Total	Aspen and yellow-poplar	Oak and hickory	Other hardwood	Total	
Barbour	-	-	*	*	-	0.2	0.2	0.4	0.4
Berkeley	-	-	3.4	3.4	-	.1	.1	.2	3.6
Fayette	-	-	-	-	-	-	1.5	1.5	1.5
Grant	-	-	1.6	1.6	-	7.2	7.1	14.3	15.9
Greenbrier	-	-	1.5	1.5	-	-	68.3	68.3	69.8
Hampshire	-	1.5	9.9	11.4	-	10.7	10.9	21.6	33.0
Hardy	-	.5	4.1	4.6	-	8.2	8.8	17.0	21.6
Jackson	-	-	2.5	2.5	-	-	-	-	2.5
Jefferson	-	-	.1	.1	-	-	-	-	.1
Lincoln	-	-	-	-	-	-	*	*	*
Mason	-	.2	2.1	2.3	-	-	-	-	2.3
Mercer	-	-	-	-	-	-	*	*	*
Mineral	-	-	2.4	2.4	-	1.8	2.1	3.9	6.3
Monroe	-	-	3.4	3.4	-	-	12.3	12.3	15.7
Morgan	-	.5	5.3	5.8	-	.7	1.2	1.9	7.7
Nicholas	-	-	*	*	-	-	.6	.6	.6
Pendleton	0.5	.3	4.8	5.6	-	2.1	12.5	14.6	20.2
Pocahontas	-	-	.3	.3	-		5.0	5.0	5.3
Preston	-	-	.6	.6	-	2.9	3.5	6.4	7.0
Putnam	-	-	.1	.1	-	-	-	-	.1
Randolph	-	-	*	*	-	1.4	2.3	3.7	3.7
Ritchie	-	-	*	*	-	4.0	*	4.0	4.0
Roane	-	-	.1	.1	-	-	.1	.1	.2
Summers	-	-	-	-	-	-	.3	.3	.3
Tucker	-	-	-	-	-	.5	.9	1.4	1.4
Upshur	-	-	-	-	*	.1	.1	.2	.2
Wirt	-	-	.3	.3	-	9.5	*	9.5	9.8
Wood	-	-	3.8	3.8	-	6.9	2.7	9.6	13.4
Total	0.5	3.0	46.3	49.8	*	56.3	140.5	196.8	246.6

[a]Counties with no production are omitted.
*Less than 50 cords.

Table 17.-Bark generated from roundwood pulpwood in the Northeast, by state and species group, 1983

(In thousand cubic feet)

State[a]	Softwood			Hardwood			All species		
	Used	Unused	Total	Used	Unused	Total	Used	Unused	Total
Kentucky	0.7	-	0.7	3.5	-	3.5	4.2	-	4.2
Maine	20.8	2.1	22.9	16.5	0.1	16.6	37.3	2.2	39.5
Maryland	1.3	-	1.3	2.1	-	2.1	3.4	-	3.4
New Hampshire	.8	-	.8	2.6	-	2.6	3.4	-	3.4
New Jersey	.1	-	.1	-	-	-	.1	-	.1
New York	3.3	1.0	4.3	2.2	.1	2.3	5.5	1.1	6.6
Ohio	-	-	-	4.6	-	4.6	4.6	-	4.6
Pennsylvania	1.4	-	1.4	6.5	.9	7.4	7.9	.9	8.8
Vermont	-	.2	.2	-	-	-	-	.2	.2
Total	28.4	3.3	31.7	38.0	1.1	39.1	66.4	4.4	70.8

[a]States with no pulpmills are omitted.

Widmann, Richard H. Pulpwood production in the Northeast--1983. Resour. Bull. NE-84. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1985. 18 p.

This annual report contains information compiled from a canvass of all pulpmills that use pulpwood produced in the 14 Northeastern states. In 1983 total production reached 8,673,800 cords. This was up 3 percent (221,600 cords) from 1982. The roundwood portion increased by less than 1 percent to 6,330,000 cords, whereas the residue portion increased by 10 percent to 2,343,800 cord equivalents. The receipts of pulpwood at the 42 mills in the region set a new high of 7,253,700 cords consumed.

861.0(74):721:792

Keywords: Pulpwood, residue, whole-tree chips, timber output.

*U.S. GOVERNMENT PRINTING OFFICE: 1985-505-028:20017

Headquarters of the Northeastern Forest Experiment Station are in Broomall, Pa. Field laboratories are maintained at:

- Amherst, Massachusetts, in cooperation with the University of Massachusetts.
- Berea, Kentucky, in cooperation with Berea College.
- Burlington, Vermont, in cooperation with the University of Vermont.
- Delaware, Ohio.
- Durham, New Hampshire, in cooperation with the University of New Hampshire.
- Hamden, Connecticut, in cooperation with Yale University.
- Morgantown, West Virginia, in cooperation with West Virginia University, Morgantown.
- Orono, Maine, in cooperation with the University of Maine, Orono.
- Parsons, West Virginia.
- Princeton, West Virginia.
- Syracuse, New York, in cooperation with the State University of New York College of Environmental Sciences and Forestry at Syracuse University, Syracuse.
- University Park, Pennsylvania, in cooperation with the Pennsylvania State University.
- Warren, Pennsylvania.

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1985

Forest Composition of Maine: An Analysis Using Number of Trees

Douglas S. Powell

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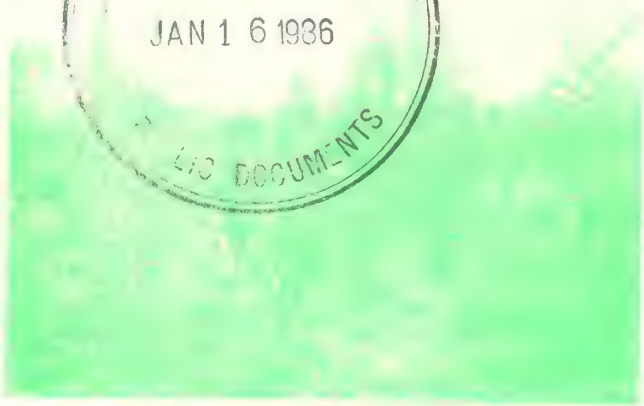

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Manuscript received for publication 5 October 1984

Abstract

Number-of-trees data compiled by the USDA Forest Service from three periodic statewide inventories of Maine's forest resources are used to analyze the composition of the state's timberland in terms of species, tree class, and size. Conditions are compared and contrasted for periods from 1959 to 1971 to 1982 across different regions and counties of the state. Twenty-three statistical tables containing 1982 estimates of number of trees, trees per acre, and average diameter are presented.

Cover Photos (clockwise, from left)

Forester on the field staff of Forest Inventory and Analysis unit measuring the diameter of a tree on a sample plot in Hancock County, foresters observing the dense stocking of spruce and fir regeneration on cutover land in Piscataquis County, and a cow moose (*Alces americana*) exploring a forested stream in Aroostook County.

orest Composition of Maine:
n Analysis Using Number of Trees

ouglas S. Powell

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troduction

an effort to assess the extent and condition Maine's forest resources, the USDA Forest rvice began collecting data in the late 1940's Hancock County in what was the beginning of atewide forest inventories in the northeastern ited States. That first survey of Maine's ods was concluded in 1959, and the results re published by Ferguson and Longwood (1960).

ce then two more surveys have been conducted Maine: the 1971 inventory (Ferguson and gsley 1972) and the 1982 inventory (Powell l Dickson 1984). With each subsequent survey, e demands for more and varied resource data to isfy current needs have led to more plicated inventories and increased tabular put from the computer. Emphasis has shifted ween these inventories, as have the graphic sampling units, standards, initions, plot designs, and processing culations and techniques.

B amid this evolving effort to conduct te-of-the-art inventories that respond to the ds of Congress and the people of Maine, one vey item has remained a basic component: mber of trees. It is generally staightforward testimate, reliable, objective, and comparable wi past estimates. In spite of its plicity, number of trees can be presented in merous contexts that, taken together, allow on to appreciate more fully the composition of th forests of Maine.

Th data in this report, then, center on number of rees. These data are estimates, and do have as ciated sampling errors. The estimates are ta n from the timberland base, and do not in ude trees on nonforest or noncommercial fo st land. Still I will be discussing about 90 ercent of the tree resource in the state and 97 ercent of the forest resource. Besides st ewide data, comparisons are made between the ni geographic sampling units used in the 1982 fo st survey (Fig. 1). Although most of the analysis focuses on the third and most recent inventory, I discuss, where comparisons are valid, trends in forest composition that have occurred during the period between inventories.

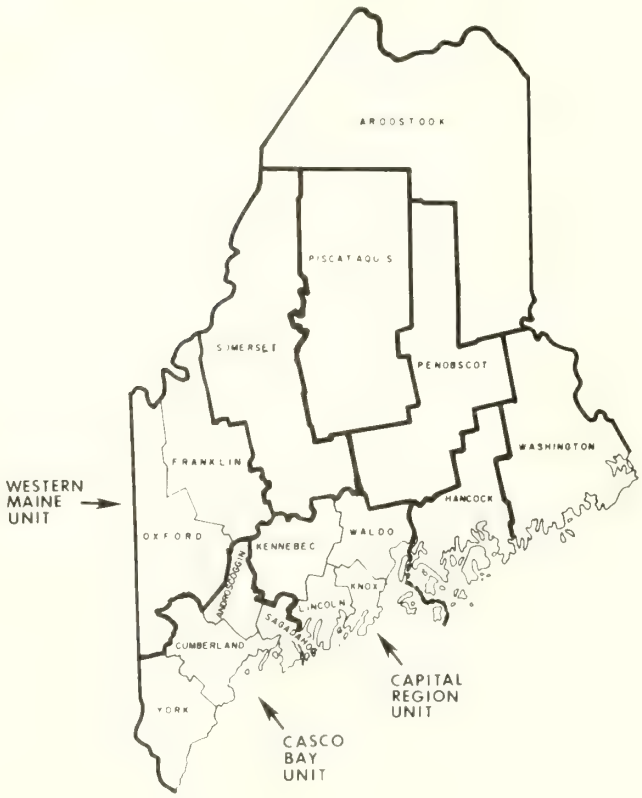


Figure 1.--Nine geographic sampling units in the 1982 Maine forest survey.

From the many approaches that one could take to evaluate forest composition, I have selected three that are useful in characterizing different aspects of Maine's woods: species composition, tree class, and size.

Species Composition

Maine has 17 million acres of timberland--a land use that occupies 86 percent of the land area of the state. Such a sizeable resource is populated with a variety of tree species. On the 2,099 new field plots established on timberland during the 1982 survey, we encountered 47 different tree species (see list in appendix). Although this is 53 species short of the total number reported by the state (Maine Forestry Department 1973), they included many exotic or uncommon species that would occur very rarely in natural forest conditions as well as many small trees that we consider shrubs. Of the 47 we tallied, 39 are commercially important to forest industries. Softwood or coniferous species number 12 while hardwood or broadleaved species are more numerous with 35. As shown later, this is nearly the only criterion in which hardwoods outnumber softwoods in Maine.

Since it is rather cumbersome to discuss all of these species as they relate to forest composition, we will concentrate on those species that predominate. Fortunately the vast majority of the number of trees are accounted for by a small number of species. All live trees (all species and all sizes from seedlings on up), total 94.4 billion on Maine's timberland (Table 1). The 10 most numerous species account for 82 percent of the total:

	Species	Number	Percent
1.	Balsam fir	24,781,403,000	26
2.	Red maple	10,206,688,000	11
3.	Sugar maple	8,928,536,000	10
4.	Striped maple	6,390,671,000	7
5.	Red spruce	5,958,107,000	6
6.	Yellow birch	4,686,610,000	5
7.	Beech	4,386,617,000	5
8.	Mountain maple	4,009,876,000	4
9.	Northern white-cedar	3,853,436,000	4
10.	Paper birch	3,771,298,000	4
	Total	76,973,242,000	82

The three softwood species--balsam fir, red spruce, and northern white-cedar--are dominant in boreal forests that cover much of northern Maine and the surrounding provinces of Canada. The seven hardwood species are common in northern states where the climate is cool and moist. The presence of striped and mountain maple may surprise many people. The species are both noncommercial and are small in stature. As shown later, size of the trees considered has a major affect on species composition. Since this list includes seedlings, which in terms of numbers of trees is overwhelming, it is understandable why these two prolific understory species are ranked so high.

In order to compare species composition for all three forest inventories of Maine, we need to consider growing stock trees 5.0 inches diameter at breast height (dbh) and larger. Also, because of the way in which the data were processed, we cannot always work with individual species and must use species groups: spruce includes red, white, and black spruce, and aspen includes quaking and bigtooth aspen plus balsam poplar. In percentage terms, here are the top 10 for each survey:

	1959		1971		1982	
1.	balsam fir	28%	balsam fir	31%	spruce	24%
2.	spruce	22%	spruce	24%	balsam fir	23%
3.	northern white-cedar	10%	red maple	8%	red maple	9%
4.	red maple	7%	northern white-cedar	7%	northern white-cedar	8%
5.	paper birch	5%	hemlock	5%	paper birch	6%
6.	hemlock	5%	paper birch	4%	aspen	5%
7.	white pine	4%	sugar maple	4%	hemlock	5%
8.	aspen	4%	white pine	4%	white pine	4%
9.	beech	4%	aspen	3%	sugar maple	4%
10.	yellow birch	3%	beech	3%	yellow birch	3%

Balsam fir and spruce dominate all three surveys. The other species pale in comparison These species reached their peak influence in 1971 with 55 percent, and reached their lowest point in 1982 with 47 percent. This is due to the significant decline caused by high rates o mortality and harvesting in balsam fir between 1971 and 1982 (Powell 1985).

No species maintained its ranking across all three inventories. (Where species tied on a percentage basis, the one(s) with more trees was(were) ranked higher). Although the shifts in ranking may be subtle in some cases, these changes in composition demonstrate the dynamic and flux of Maine's forest resource.

The changes are the result of natural and man-caused factors working to varying degrees with one another. For instance, red maple is showing slow but steady progress, moving from to 9 percent. As in other states in the Northeast (Powell and Considine 1982, Considin 1984), this species is coming on strong. It grows on a wide variety of sites, sprouts well has frequent and abundant seed crops, is rarel troubled by forest pests, and is an aggressive competitor. Where other species drop out of stands due to disease, insect attack, suppression, or harvesting, red maple seems to capitalize on these vacancies and fills in the stands.

Another example is beech, which has slowly dropped out of the top 10. As a long-lived shade tolerant species that is an important component of the climax-tending forest type of sugar maple-beech-yellow birch (Berglund 1980) one might expect that as Maine's forests matur beech would increase its share of the resource But beech is losing ground in Maine, and it seems that the major cause is beech bark disease. This destructive malady is actually one-two punch. The damage results from the sequence of beech scale insect (*Cryptococcus fagi*) infestation followed by infection with t bark fungus *Nectria coccinea* var. *faginata* (Hepting 1971). This introduced disease has been in Maine some 50 years, and it is sometim difficult to find a beech tree that has not be affected. In the 1982 inventory, 65 percent c the beech growing-stock trees (5.0+ inches

)h) were afflicted by the scale insect and 58 ercent showed evidence of the nectria fungus. ie percentage of trees with both present multaneously would be even higher. Some rveys have estimated that one-quarter of ine's beech trees have succumbed to this sease (Orr and Brown 1978).

gure 2 shows by county where each of the top growing-stock species (5.0+ inches dbh) are ncentrated in Maine. Since red spruce has en isolated (1982 data) it occupies the number o position after balsam fir. Each map shows e distribution of a species across Maine in rms of four categories of trees per acre. The nges of each category vary for each species in der to highlight each species distribution. le state average is provided to give a ference point for comparison.

ese maps can be used in many ways. For stance, if someone were interested in starting aple syrup business or in finding spectacular ll foliage, Franklin, Somerset, and Aroostook unties would be obvious areas to investigate g. 2I). A white pine lumber manufacturer uld be drawn to southwestern Maine (Fig. 2H), le someone supplying a cedar log cabin mill uld go in the opposite direction (Fig. 2D). A dlife photographer seeking to capture the ten (Martes americana) on film would head for thern and western Maine where spruce and fir a most common.

ividuals seeking the distinctive paper birch, her for esthetic enjoyment or for turning the d into any number of specialty products, from f tees to tongue depressors, would best centrate their efforts in western Maine, ecially Franklin County (Figure 2E).

mmon distinction in forestry is made between twood and hardwood species. While such a tinction is broad, it often provides a useful ose in describing the timber resource or life habitat in general terms. Maine is ue as a northeastern state in many respects, n of which is that it is dominated by softwood s. Geographic location accounts for Maine's e boreal component of spruce, balsam fir, northern white-cedar as well as such cooler ate species as hemlock and white pine. In 19 , 65 percent of the growing-stock resource was softwood, and northern and eastern Maine were the areas where softwoods were most prevalent (Fig. 3).

While such dominance is impressive, it pales somewhat in comparison to the situation in the preceding survey. In 1971, the softwood percentage was 72 and all nine geographic sampling units were dominated with needle-leaved trees. By 1982, all units had a lower proportion of softwoods. The two units showing the most change actually moved to a hardwood-dominated condition: Casco Bay went from 57 percent softwood to 44 percent and the Capital Region went from 56 percent to 46 percent. It is difficult to assign a cause for these changes, but perhaps a combination of forest succession, harvesting practices, and insect (especially spruce budworm) damage is the cause.

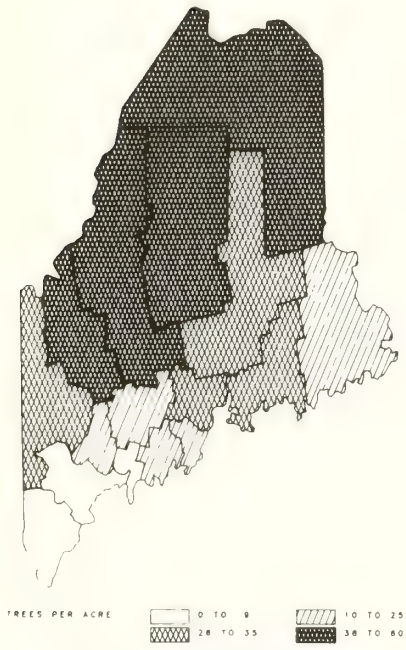
Tree Class

Tree class is used to group trees by their potential for producing high-quality lumber. Growing-stock trees are divided into two classes: preferred trees are of highest quality, and acceptable trees are merchantable but not good enough to be preferred. Rough and rotten trees are live trees that are unmerchantable for sawlogs due to poor form or excessive decay, respectively. They are also known as cull trees. The two dead classes are salvable dead trees or trees that have died recently and could be used for wood products, and dead trees that are still standing but are no longer of any possible use as a product. This nonsalvable dead class generally describes trees known as snags and serves a useful purpose from a wildlife habitat point of view. Tree class was only assigned to trees 5.0 inches dbh and larger.

The average tree-class percentage of all species for the state in 1982 was 19 preferred, 53 acceptable, 10 rough cull, 6 rotten cull, 5 salvable dead, and 7 nonsalvable dead. The growing-stock trees dominate the resource, followed by cull trees and then dead trees. Within these broad classes, acceptable trees are more common than preferred trees, rough culls are more common than rotten culls, and nonsalvable dead trees are more common than salvable dead trees. The preferred category represents the elite in sawlog potential trees. It is natural to expect that they would make up a minority of the growing-stock resource. Trees are classed as rough cull when they are too deformed due to excessive branching, taper, sweep, or crook to yield a merchantable sawlog. If the tree is only a poletimber tree at the time of the inventory, then its condition when it reaches sawtimber size is projected, and if it is determined that the tree will not then yield a merchantable sawlog because of poor form, it is classified as a rough cull. Growing conditions and species composition in Maine have resulted in more rough culls than rotten ones. In the dead tree categories, the nonsalvable trees are more prevalent in stands because they can remain standing for several years, while the salvable dead trees remain in their condition only briefly before becoming totally unmerchantable. These relative positions of the tree classes generally hold true for the different species and the different geographical areas of Maine, but the actual percentage distributions vary.

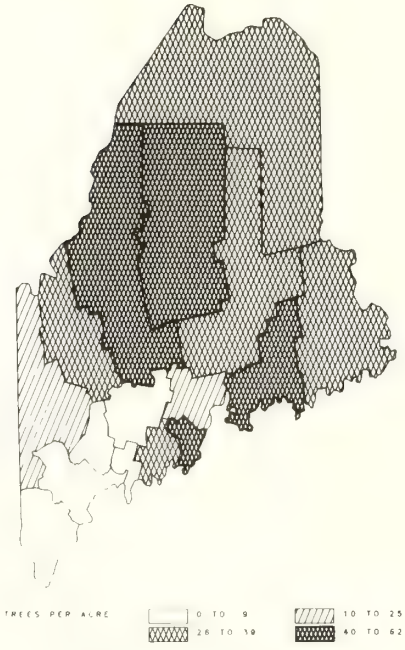
The top 10 species groups for all trees 5.0 inches dbh and larger account for 85 percent of the total for all species (Table 11). When we compute the tree class percentage for these

A. BALSAM FIR



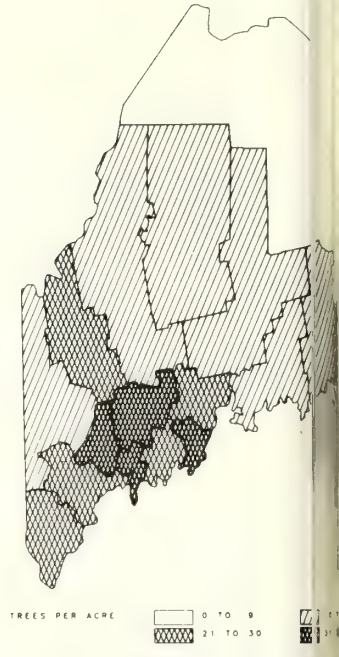
STATE AVERAGE = 41 TREES PER ACRE

B. RED SPRUCE



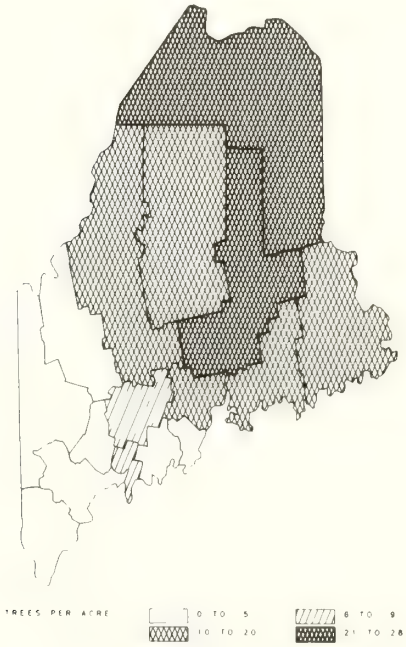
STATE AVERAGE = 34 TREES PER ACRE

C. RED MAPLE



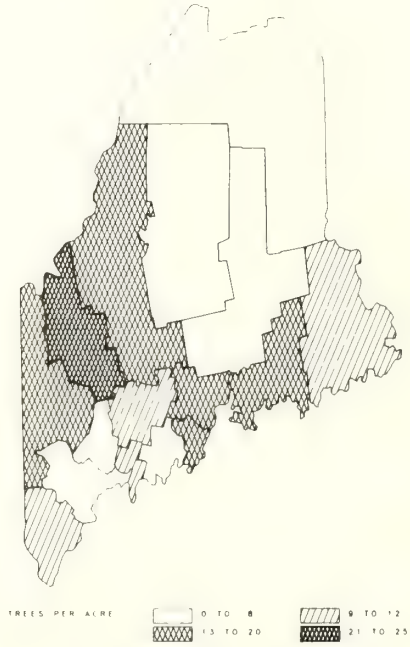
STATE AVERAGE = 17 TREES PE .CRE

D. NORTHERN WHITE-CEDAR



STATE AVERAGE = 15 TREES PER ACRE

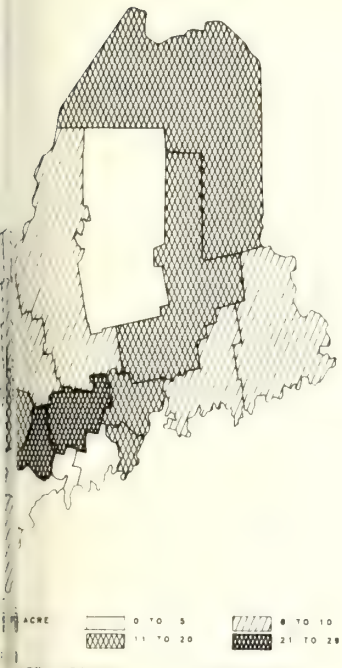
E. PAPER BIRCH



STATE AVERAGE = 11 TREES PER ACRE

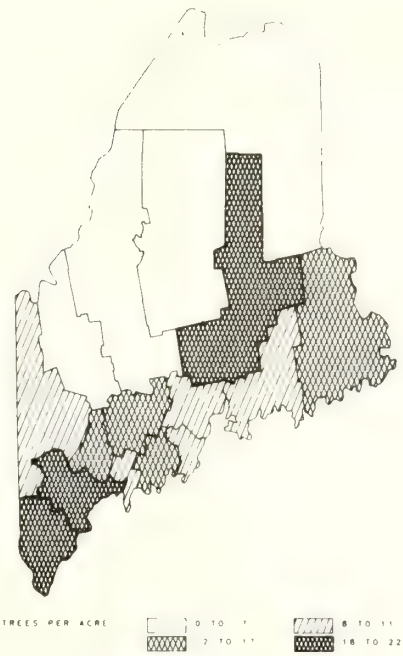
Figure 2.--Number of trees per acre for each of the top 10 growing-stock species by county, 1982.

ASPEN



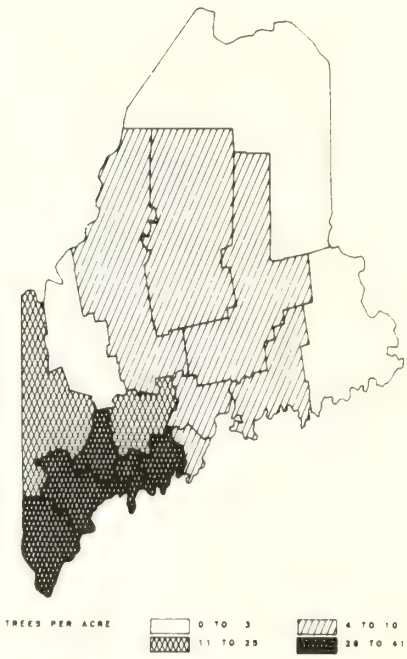
ATE AVERAGE = 9 TREES PER ACRE

G. HEMLOCK



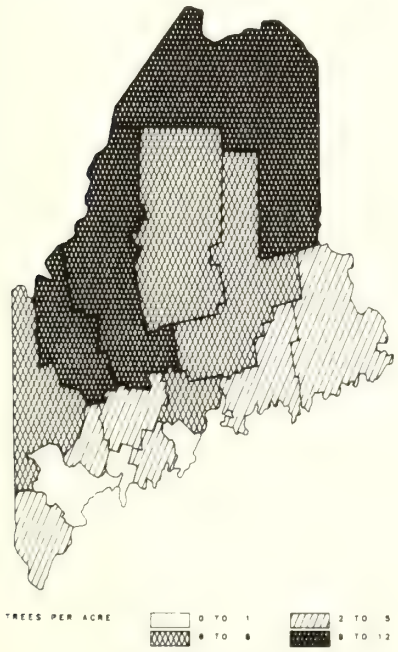
STATE AVERAGE = 9 TREES PER ACRE

H. WHITE PINE



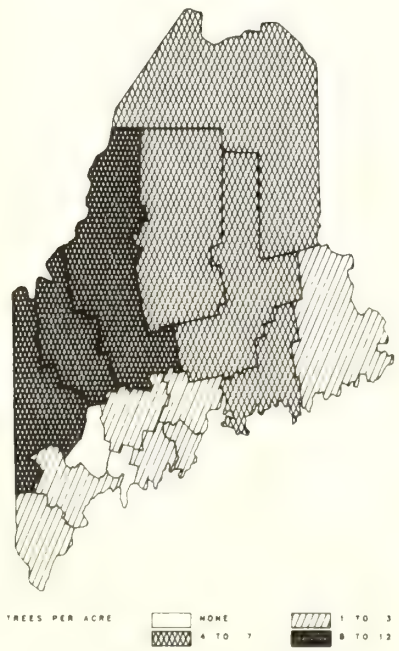
STATE AVERAGE = 7 TREES PER ACRE

I. SUGAR MAPLE



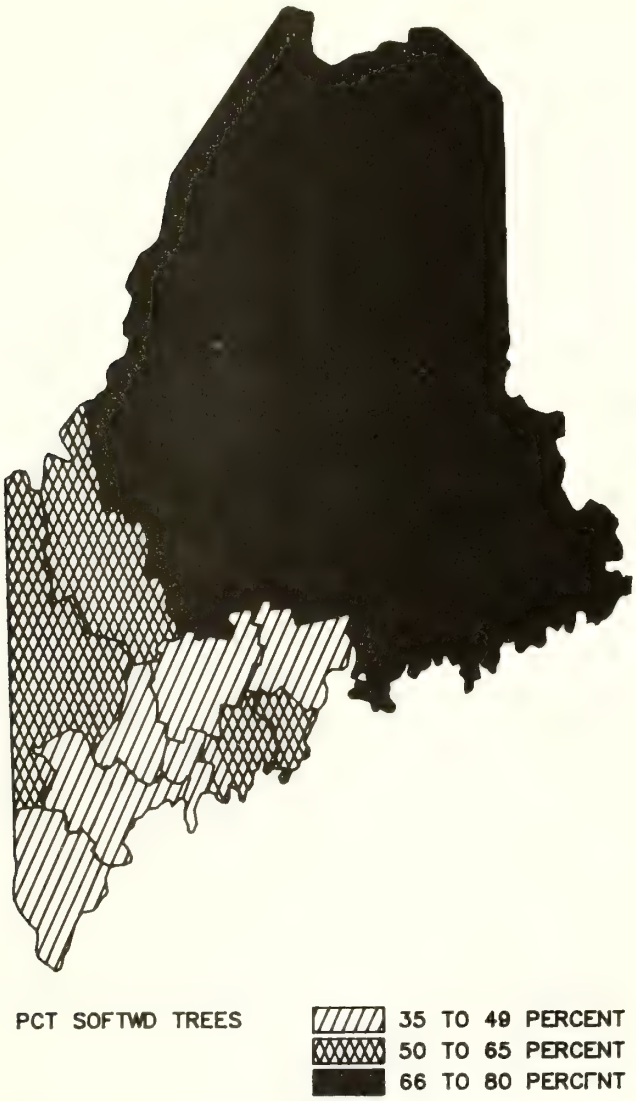
STATE AVERAGE = 7 TREES PER ACRE

J. YELLOW BIRCH



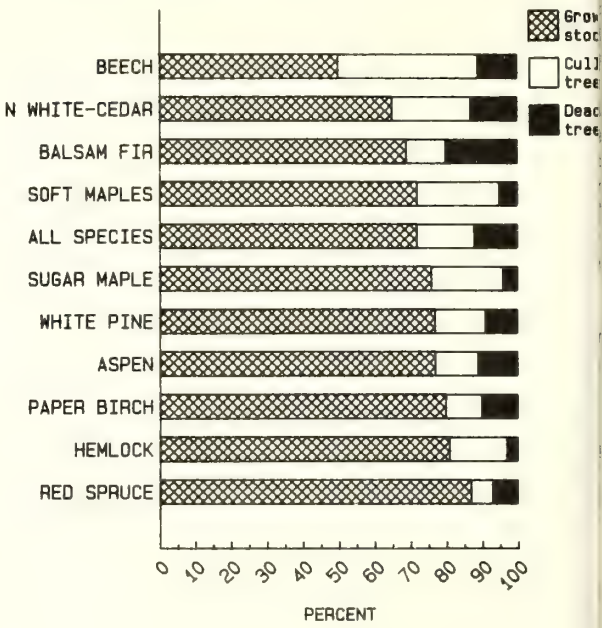
STATE AVERAGE = 6 TREES PER ACRE

Figure 3.--Percentage of growing-stock trees (5+ inches dbh) that are softwood, 1982.



species groups and arrange them in ascending order based on the growing-stock component, we can see some significant variation (Fig. 4). Beech has 50 percent in the growing-stock classes (the lowest) and 39 percent in the cull classes (the highest). Beech is also the only species that has more rotten cull trees than rough cull trees. At the opposite extreme, red spruce has 87 percent in growing-stock classes and more than one-third of its trees are preferred. Red spruce also has the lowest percentage in cull classes (6). Balsam fir leads the dead tree classes with one out of five trees in either a salvable or nonsalvable condition.

Figure 4.--Tree-class distribution for the to 10 species groups, 1982.

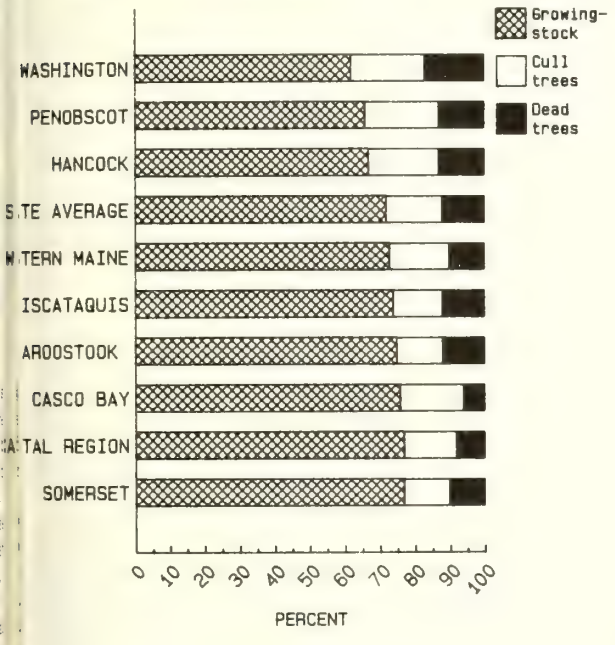


If we do a similar analysis using all species across the nine geographic sampling units, we see that Washington County has the poorest (fr the timber viewpoint) tree-class distribution while Somerset County has the best (Fig. 5). Washington County has 62 percent of its trees growing-stock classes (the lowest), 21 percent in cull-tree classes (tied for the highest), a 17 percent in the dead classes (the highest). This county's forests have been heavily attacki by numerous insect pests, and the county has generally received less protection than other parts of the state. Through the decades of th century the stands have been picked over and t best trees removed. Washington County showed the lowest ratio of net growth to removals (0. for the period 1971 to 1981. This suggests th the relatively high level of harvesting of growing-stock trees has resulted in a relative high residual of cull trees. Its current condition is the result of a history of high-grading logging practices that are reflected in these data more than in other areas. Penobscot and Hancock Counties are als in this general part of the state and are not much better shape than is Washington County. Table 21 provides geographic unit comparisons tree class in terms of trees per acre.

When we ignore dead trees and look only at the proportion of the live tree resource that is i cull trees, the results are similar. Figure 6 shows that cull trees are concentrated in southeastern Maine (Washington, Penobscot, and Hancock Counties). York County, in the Casco Bay unit, also has a significant cull resource A check of the individual species in that coun

ows that the hardwoods are about the same as
e state average. The softwood species,
pecially white pine, balsam fir, and red
ruce, have much greater than average number of
ll trees. The white pine culls are mostly
ugh trees--cabbage pines--that have sustained
ite pine weevil (Pissodes strobi) damage (more
this later). The fir and spruce trees are
t nearly as common here, and are on the edge
their range in Maine. The less favorable
te conditions may have caused the high
rcentage of culls in these species.

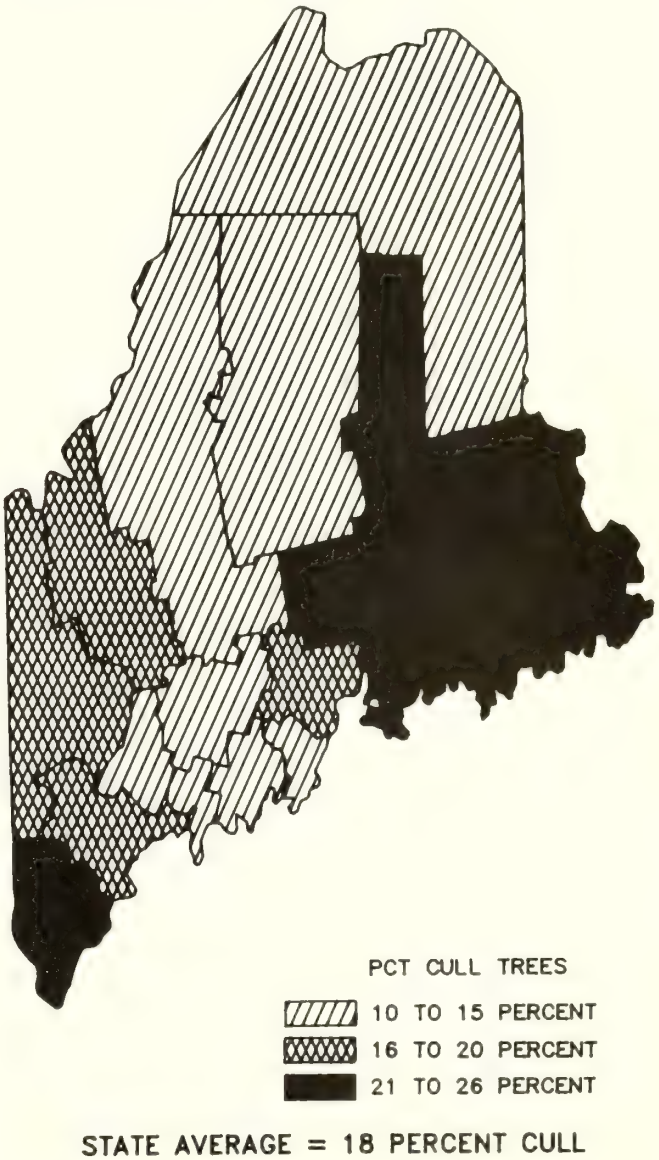
gure 5.--Tree-class distribution by geographic
it, 1982.



Fo cull trees, the state average of all species
fo the state in 1982 was 18 percent, or nearly
2 ut of every 5 live trees (5.0+ inches dbh).
Ir 1971 this percentage was 15, indicating that
th cull-tree resource has increased. The
nu er of cull trees increased by 19 percent
ov the period between inventories while the
nu er of growing-stock trees registered a 3
pe ent decline. The hardwood species, as a
gr p, showed little change moving from 26
pe ent cull in 1971 to 25 percent in 1982.
Be h was the only major hardwood species that
ha an increase in the proportion of cull trees,
mo ng from 36 percent to 44 percent. This is
at ibutable to the further impact of beech bark
di ase.

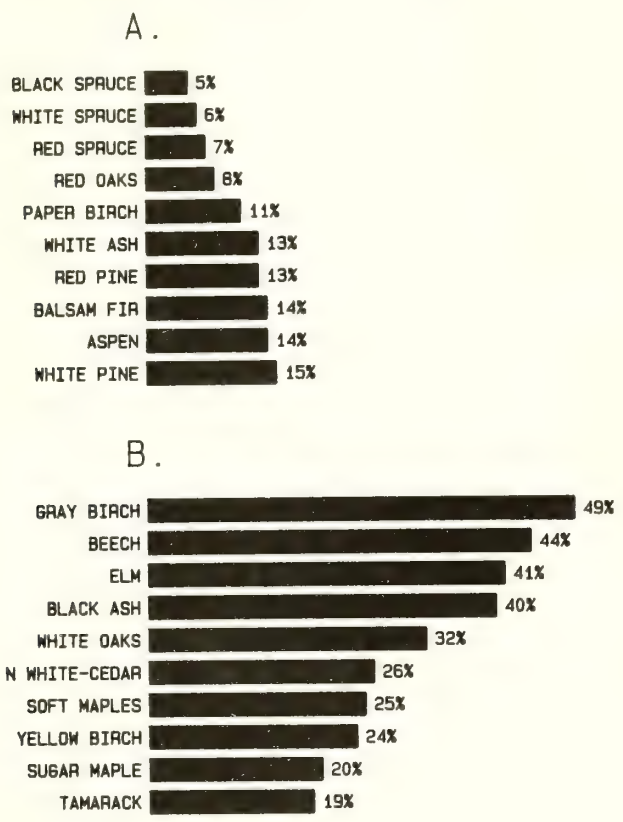
It s in the dominant softwood resource that the
ma r change has occurred, increasing from 10
pe ent cull trees to 13 percent. Not all
sp ies showed an increase, but the spruce-fir
re urce, which dominates the softwoods, did.
Ba am fir showed the greatest shift, from 5 to
14 ercent. Stagnant growing conditions in
ov nature and overstocked stands plus the
weakening effects of attack from the spruce budworm (Choristoneura fumiferana) have been the primary causes for the number of cull balsam fir trees to increase 98 percent (nearly double), while the number of growing-stock trees declined by 29 percent over this same period.

Figure 6.--Percentage of live trees (5+ inches dbh) that are cull, 1982.



But despite these trends, the spruce and fir species are still well below the state average in percentage of cull trees (Fig. 7). Since softwoods on the average have only one-half the share of cull trees that hardwoods have, it is not surprising that softwood species dominate the low percentage list while hardwoods dominate the high percentage list.

Figure 7.--Ten species with the lowest (A) and highest (B) percentage of cull trees.



Many factors contribute to the percentage of cull trees for a species. The most important is the inherent capacity of the species to produce sawtimber trees. Gray birch, for instance, is generally a small, short-lived pioneer species that is not recognized as a lumber species. This is borne out by the fact that it has the highest percentage of cull trees--49. Another important factor is the susceptibility of the species to fire, insect, disease, or other damage that might prevent the species from producing timber. Beech and elm are two examples of hardwood species that have high numbers of cull trees due to insect and disease problems--beech bark disease and dutch elm disease, respectively. White pine, though one of the 10 species with the lowest proportion of culls, could have a figure much lower than 15 percent if it were not for the white pine weevil. This insect feeds on the succulent growth of the terminal leaders and eventually kills them. The dead terminal shoot is replaced by one or more branches of the topmost living whorl, which assumes vertical growth causing a crooked or forked stem (Baker 1972). Trees suffering this type of damage for several years become multiple-stemmed, cabbage-shaped, and worthless for timber. A third factor is the level of forest management that has been practiced with a given species or group of species. In Maine, this factor is not very important because the level of sound forest management, especially for sawtimber products, has been low.

The species composition within tree classes is dissimilar. Figure 8 shows the three broad tr classes--growing-stock, cull, and dead--and th top five species within each one. The only consistent species is balsam fir, which ranks first in all classes. But notice that of all the salvable and nonsalvable dead trees 5.0 inches dbh and larger, balsam fir accounts fo an extraordinarily large share--43 percent (F. 8C). Insect, disease, and old age are obviou affecting the balsam fir resource more than other species. Northern white-cedar is the on other species in the top five for all tree classes. Note that its share of the cull and dead resources exceeds its share of the much larger growing-stock resource. This is so because there was no market for this species r many years and cedar will stand dead or partl dead for many years.

Size

Size classes are based on diameter at breast height, which is the diameter outside bark of standing tree measured at 4-1/2 feet above th ground. The smallest trees are seedlings or trees at least 1 foot tall and less than 1.0 inch dbh The next two classes are saplings: 2-inch (1.0 to 2.9 inches dbh) and 4-inch (3. to 4.9 inches dbh). Once a tree reaches 5.0 inches dbh it qualifies as merchantable-sized and we calculate cubic volumes from this poin on. Poletimber trees range from 5.0 inches d to 8.9 inches dbh for softwoods and to 10.9 inches dbh for hardwoods. Sawtimber trees ar 9.0 inches dbh and larger for softwoods and 1 inches dbh and larger for hardwoods.

As we consider different subsets of the top 1 species for all live trees of all sizes, the species composition shifts (Fig. 9). Balsam fir, which dominated all sizes, is still firs for trees 5.0+ inches dbh But for trees 9.0+ inches dbh it fell to the number two spot, an for large trees (15.0+ inches dbh) it account for less than 2 percent of the resource and di not make the top 10. Red maple, the most populous hardwood species, remained in the to 10 but fell steadily in rank as only larger sized trees were considered (Fig. 9). White pine, on the other hand, moved in the opposit direction from ninth place to fifth to first the smaller trees were ignored.

Another way to look at this is to calculate fo each species the percentage of all species fo each diameter class and then plot these percentages across the diameter classes. I di this for six species (Fig. 10). To interpre this graph, follow a species for each diamet

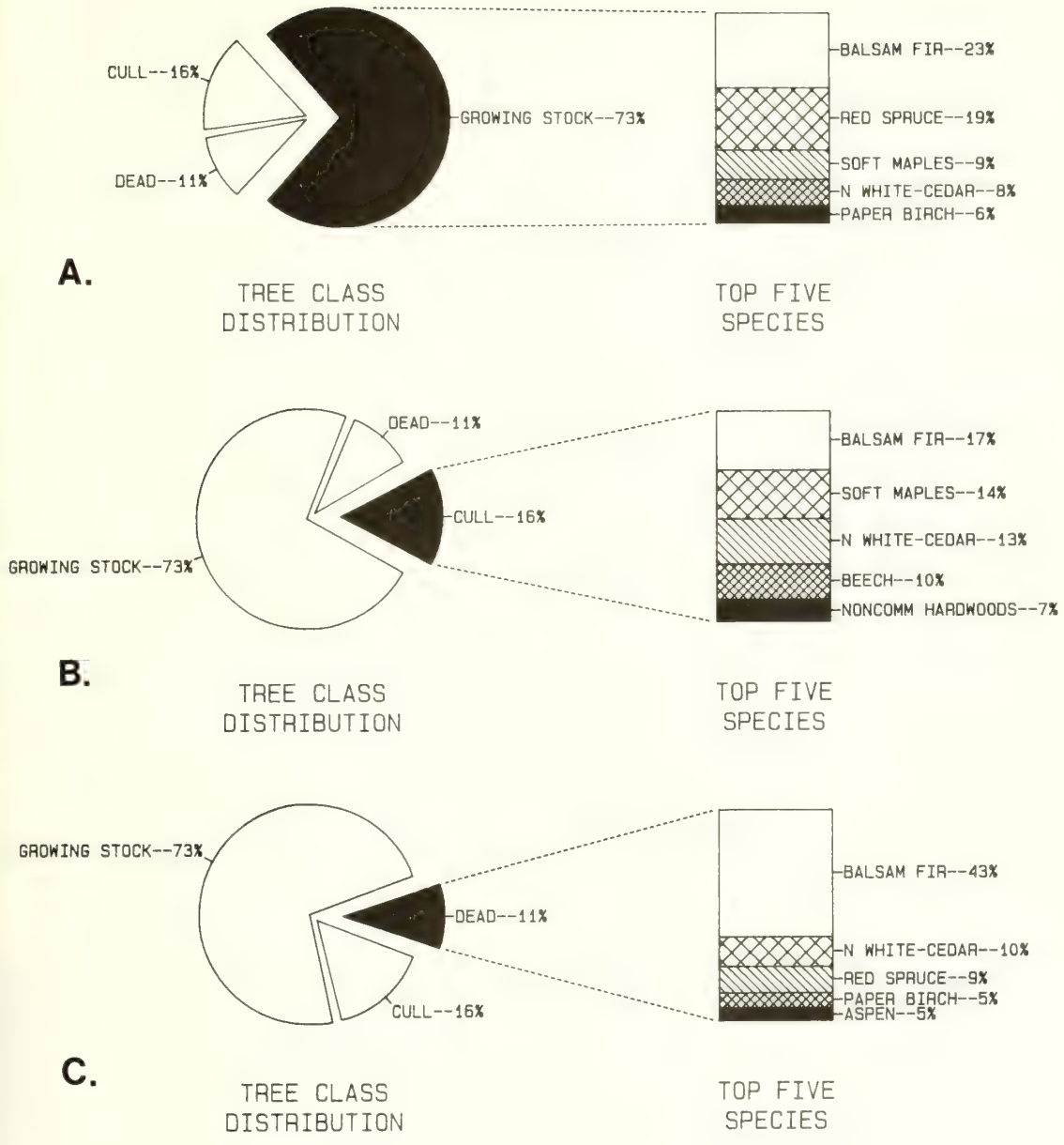


Figure 8.--Percentage of top five species within three broad tree classes: A--growing stock, B--cull, and C--dead.

class to see how it compares with all of the other species. For example, look at balsam fir. For the seedling class, its value is 26 percent, meaning that for all live seedlings in Maine 26 out of every 100 are balsam fir. For the 2-inch sapling class, balsam fir accounts for nearly one out of every three trees. From this point balsam fir's dominance declines sharply. This emphasizes the small-tree nature of the balsam fir resource. In contrast, white pine is a large-tree species whose share of the resource expands with increasing diameter. Its influence begins its steep ascent at the 10-inch diameter class, and for the largest trees white pine accounts for more than 20 percent of the resource. Sugar maple follows a similar trend with notable exceptions in the seedling and sapling classes. Sugar maple is much more prolific in the understory of Maine's woods than is white pine.

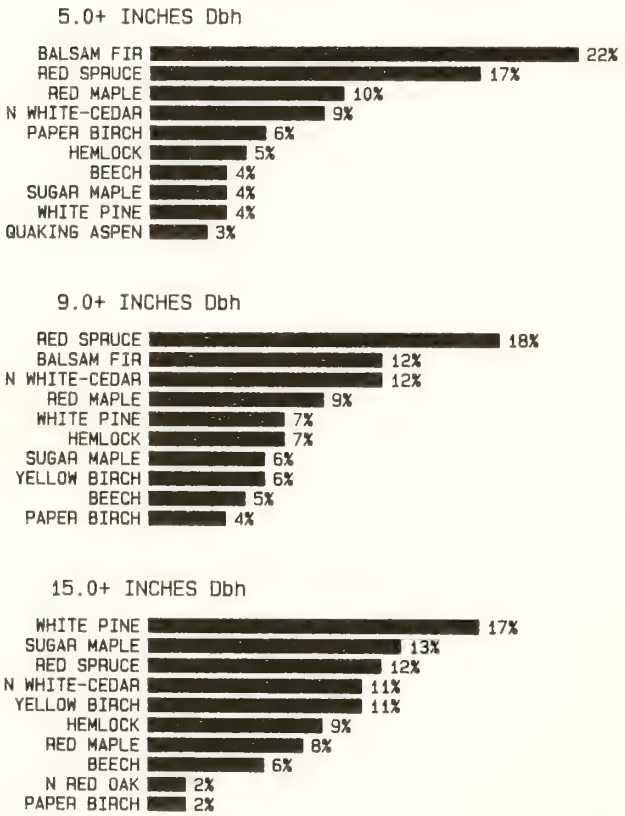


Figure 9.--The top 10 species based on all live trees for three different size classes.

Realizing that averages can be misleading, we can make some important observations by studying the average diameters of growing-stock trees 5.0 inches dbh and larger. The statewide average for all species in 1982 was 8.1 inches. In comparison to other states, Maine has a small-sized timber resource. Of the 14 northeastern states, Maine ranks last in average diameter. It is therefore not surprising tha the primary timber industry in the state is p and paper--an industry that is well suited to utilizing the abundant resource of small tree that dominates Maine's timberland.

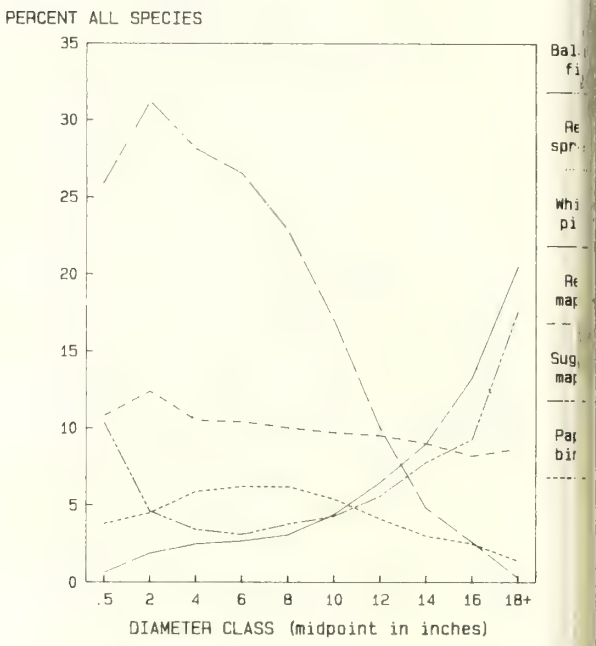


Figure 10.--Size-class concentrations for six species, 1982.

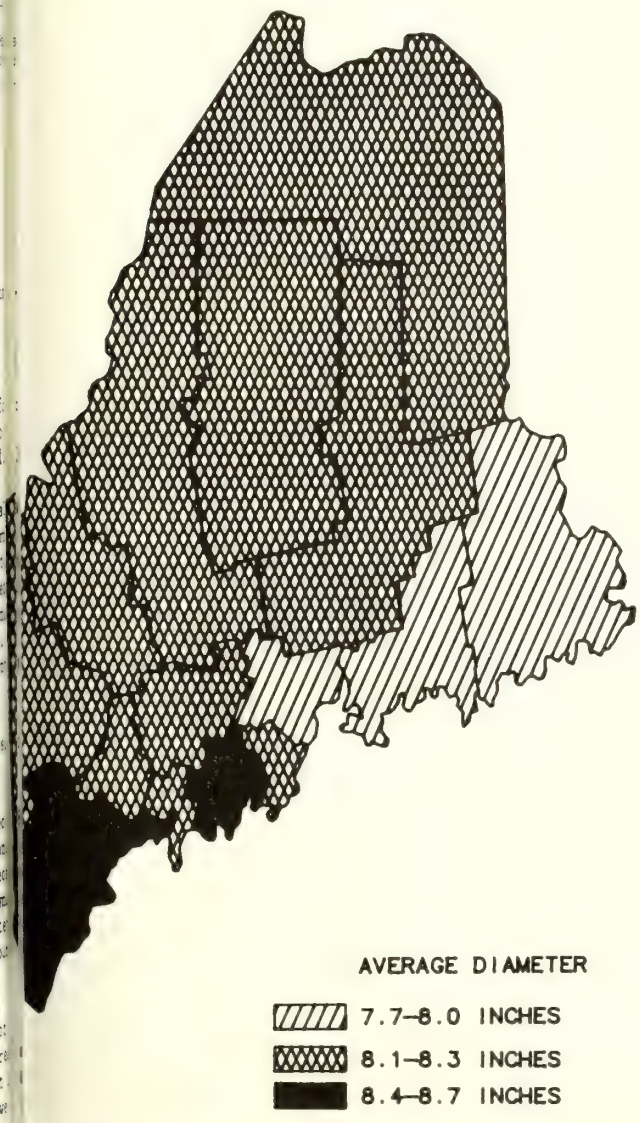
At the county level, the average diameter fo all species ranged from 7.7 inches in Waldo County to 8.7 inches in York County (Fig. 11 Eastern Maine, which had the lower quality resource in terms of cull trees (Fig. 6), al has the smaller tree resource. The southern Maine counties have the greatest concentrati of larger trees, which probably reflects bet growing conditions as well as a preponderanc white pine (Fig. 2H), a large-tree species. Concentration and continuation of management activities in this region also may have contributed to this situation (personal communication, Kenneth Hendren, Maine Forest Service).

Table 23 shows the average diameter by speci These data, especially at the geographic-uni level, should be used with some caution beca in many instances they are based on very sma samples. For instance, the average diameter 19.4 inches for red oaks in Piscataquis Coun seems extraordinarily large. There are relatively few red oaks in the county and samples are highly variable. If we extract e 10 species (or species groups) with the grea st number of trees in the state and then list t m in descending order of average diameter, we t

White pine	10.1
Sugar maple	9.3
Yellow birch	9.3
Hemlock	9.0
Northern white-cedar	8.6
Aspen	8.3
Red spruce	8.2
Soft maples	8.0
Paper birch	7.6
Balsam fir	7.3

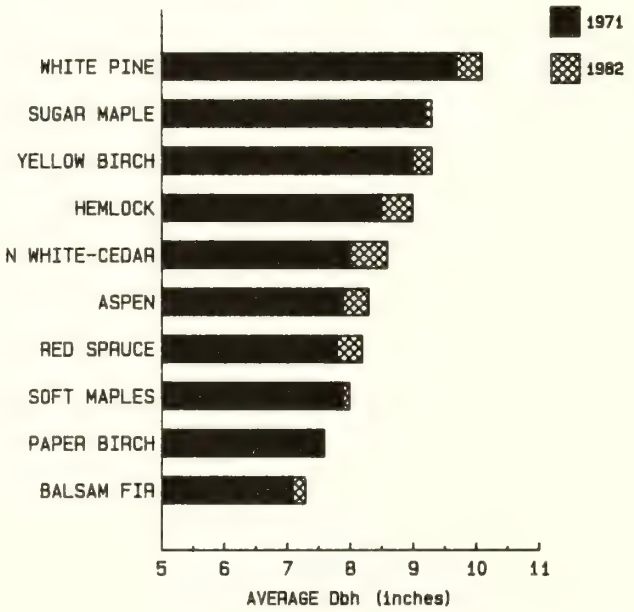
This ranking confirms what was suggested for the species in figure 10.

Figure 11.--Average diameter of growing-stock trees (5+ inches dbh), 1982.



Comparing these data with the 1971 situation shows that nearly every species registered an increase in average diameter. The average for all species increased from 7.8 to 8.1 inches. Hardwoods moved only slightly (8.2 to 8.3) while softwoods rose 1/2 inch (7.6 to 8.1). Change for the species listed above is shown in figure 12.

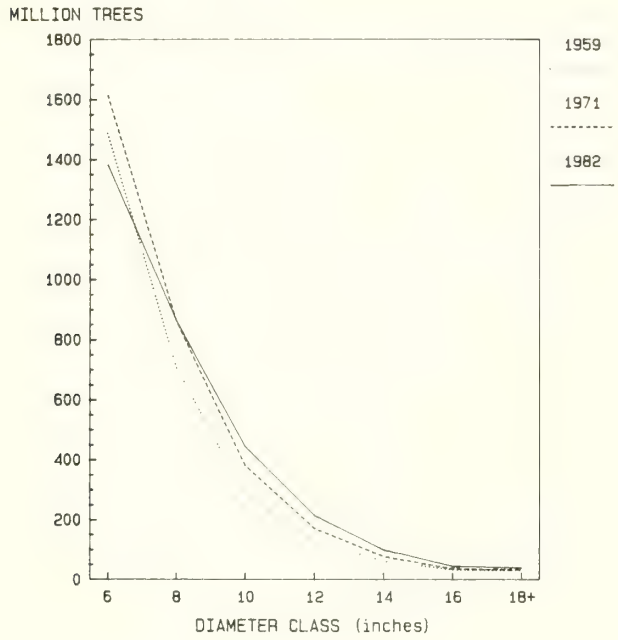
Figure 12.--Change in average diameter for top 10 growing-stock species, 1971-82.



Change in average diameter is the result of two basic transitions. The most obvious is the radial increment of growth that the trees added to their girth in the 11 years between the surveys. This accretion contributes to the noticeable increase for many species. But why is it that some species show no change or even a drop in average diameter? This is explained by the second transition, which is change in the population of the number of trees present at each inventory date. In the forest, which is a living and dynamic ecosystem, trees are growing and moving across the 5.0-inch-dbh threshold and thus entering the population. Other trees are being killed by catastrophic events, such as a spruce budworm outbreak, fire, or a severe windstorm. Still other trees are dying more natural deaths as they are crowded out of a stand or succumb to old age. Trees are also being harvested for a variety of timber products, generally the larger trees for sawlogs and the smaller trees for pulpwood or firewood. So the population of growing-stock trees 5.0 inches dbh and larger is never the same from year to year or survey to survey. And depending on the extent of the shifts and the diameter classes affected most, the average diameter may decline, stay constant, or increase.

To help visualize these dynamics, figures 13, 14, and 15 show the diameter distributions of various species and species groups for the three inventory dates. Looking at all species first, between 1959 and 1971 the number of growing-stock trees increased 16 percent, and this increase was relatively evenly distributed across all diameter classes (Fig. 13). Between 1971 and 1982, this trend changed, and the total number of trees declined 3 percent. The drop was limited to trees in the 6-inch class while the number of trees in the other classes remained unchanged or increased. Despite the decline in numbers of 6-inch trees, this class still accounts for a large--45 percent--segment of the resource.

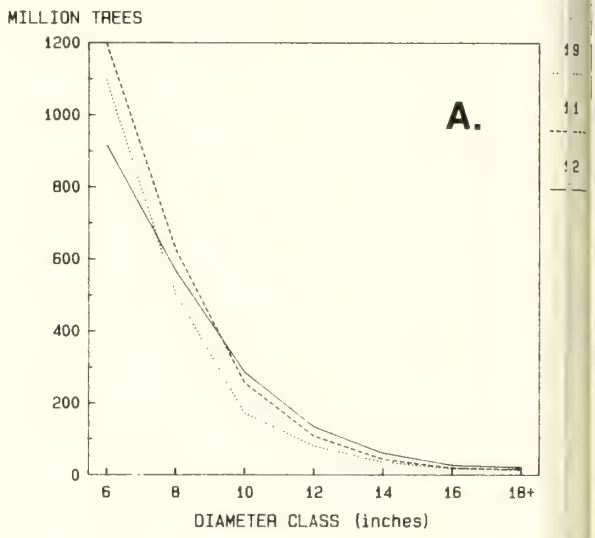
Figure 13.--Number of growing-stock trees (all species) by diameter class, 1959, 1971, and 1982. Total number of trees in 1959--2,727.8 million, 1971--3,171.3 million, and 1982--3,083.3 million.

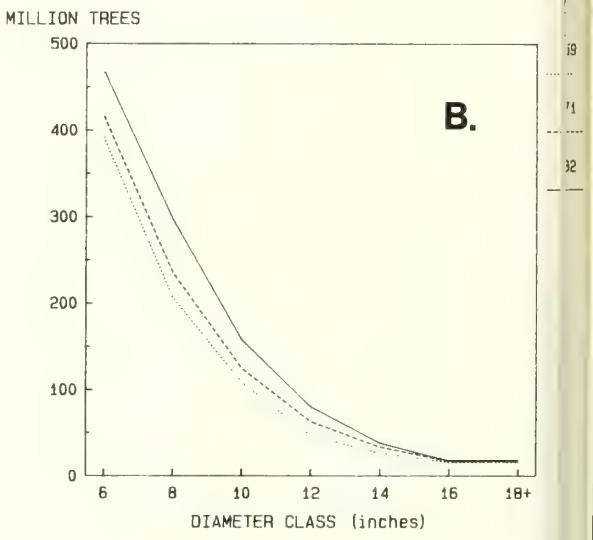


Because softwoods account for about two-thirds of the growing-stock resource, it is not surprising to see that the trends in softwoods (Fig. 14A) are very similar to the curves for all species. The only noticeable difference is that the 8-inch class also contributed to the drop in numbers of trees--an 11 percent decline for all softwoods between 1971 and 1982.

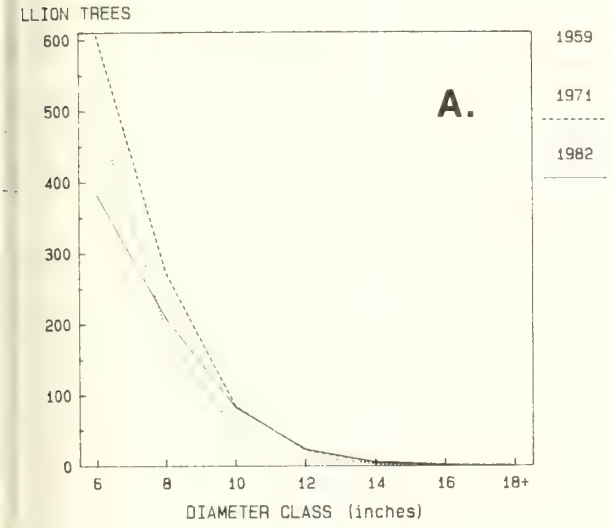
The hardwood situation is much different. Between 1959 and 1971, the number of trees increased by a modest 12 percent with increases occurring in nearly all diameter classes (Fig. 14B). But between 1971 and 1982, instead of losing trees as in the softwood case, the hardwoods continued to increase and at an even faster pace--up 19 percent. Again, these increases occurred across the diameter classes,

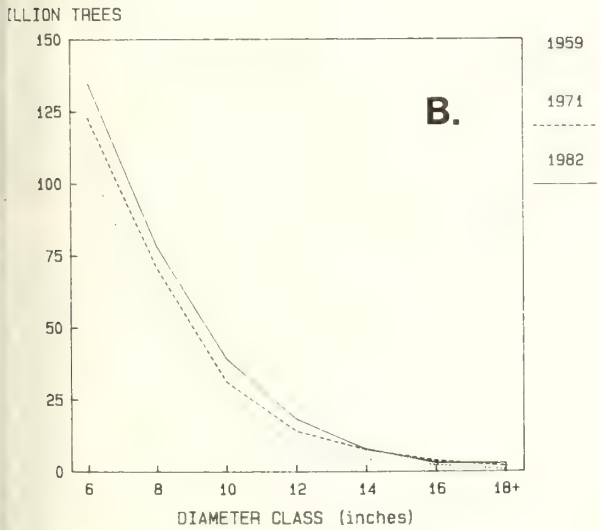
Figure 14.--Number of softwood (A) and hardwoo (B) growing-stock trees by diameter class, 195 1971, and 1982. Total number of softwood growing-stock trees in 1959--1,917.8 million, 1971--2,265.7 million, and 1982--2,008.8 million. Total number of hardwood growing-stoc trees in 1959--810.0 million, 1971--905.7 million, and 1982--1,074.5 million.





gure 15.--Number of balsam fir (A) and red ple (B) growing-stock trees by diameter class, 59, 1971, and 1982. Total number of balsam r growing-stock trees in 1959--760.6 million, 71--989.2 million, and 1982--703.6 million. tal number of red maple growing-stock trees in 59--204.4 million, 1971--252.2 million, and 82--284.1 million.





with the exception of the larger sawtimber trees which have remained constant since 1959. It is evident that the hardwood resource is changing in ways unlike the softwood resource. It has the characteristics of a thriving resource that is recruiting new trees to the 6-inch class, is growing in size, and is maturing. These are characteristics shared by the hardwood resource throughout the Northeast.

Figure 15 shows the diameter distribution of the most common softwood (balsam fir) and the most common hardwood (red maple). Balsam fir was increasing at a robust rate, 30 percent, between 1959 and 1971. Industry geared up to capitalize on this resource, one which was overstocked, particularly with small, aging trees. Mortality due to suppression and old age began to take its toll, and this process was accelerated by a severe outbreak of the spruce budworm. The result of these factors led to the dramatic reversal between 1971 and 1982 (Fig. 15A). The total number of trees actually fell below the 1959 level.

Red maple continues to build its growing-stock resource. This amazing species has been increasing throughout the Northeast for the last 20 years, and Maine's red maple is no exception (Fig. 15B). While its number of trees has increased across the first four diameter classes (which contain 95 percent of the red maple trees) during both remeasurement periods, its rate of increase has slowed from 23 percent (1959 to 1971) to 13 percent (1971 to 1982). This is somewhat contrary to the overall hardwood trend, and may indicate that red maple in Maine is nearing its potential as a component in Maine's timberland.

Summary

Maine's timberland, as revealed by USDA Forest Service inventories, is composed of 47 different species. Thirty-five of these are hardwoods; this is one of the few statistics where softwoods play a minor role. Softwood species clearly dominate in terms of number of trees, especially balsam fir and the spruces. Species composition is dynamic as opposed to static. It has changed over the relatively short time of 23 years between the first and third inventories. Composition also varies across the state due to changes in climate, soils, and other natural and man-caused factors.

Growing-stock trees dominate the timberland. Cull trees and dead trees come in a distant second and third, respectively. There is quite a range of tree-class distributions by species. Red spruce, for instance, is in a most favorable sawtimber situation, while beech is in a most undesirable condition. Such conditions vary across Maine, with less favorable conditions in the East. The cull resource has increased for softwoods but is still considerably less than it is for hardwoods. Species composition within tree class varies, and balsam fir most clearly

demonstrates its dominance in the dead tree resource of Maine.

As different sizes of trees are considered, the species composition also varies. At one extreme, balsam fir dominates the small size classes while white pine is most common in the large sawtimber sizes. The average diameter of trees in Maine is the smallest of all 14 Northeastern states despite an increase since 1971. This increase is due to a combination of accretion and various stand dynamics that affect tree populations. The 6-inch diameter class accounts for nearly one-half of all growing-stock trees despite a significant decline since 1971. This decline occurred in the softwood species, as the hardwoods showed increases in the poletimber and small sawtimber classes while remaining unchanged in the large sawtimber class. These differences between softwoods and hardwoods are attributable to differences in growth patterns, kinds and impacts of damages (insect, disease, weather, fire, etc.) and harvesting practices.

Number of trees is a resource variable that receives little attention. But it can be presented in any number (no pun intended) of ways. The three used here--species, tree class, and size--provide a good, basic description of the tree resource in Maine. And by introducing comparable data from the first two inventories, we have been able to analyze the dynamics of Maine's forest and to understand more completely some of the shifts that are continually occurring within this large and complex ecosystem.

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Appendix

Definition of Terms

Acceptable tree. (a) Live sawtimber trees tha do not qualify as preferred trees but are not cull trees. (b) Live poletimber trees that prospectively will not qualify as preferred trees, but are not now or prospectively cull trees.

Accretion. The estimated net growth on growing-stock trees that were measured during the previous inventory, divided by the length f the period between surveys. It does not incl e the growth on trees that were cut during the period, nor those trees that died.

Commercial species. Tree species presently or prospectively suitable for industrial wood products. Excludes species of typically smal size, poor form, or inferior quality, such as hawthorn and sumac.

Cull tree. A rough tree or a rotten tree.

Diameter at breast height (dbh). The diameter outside bark of a standing tree measured at 4-1/2 feet above ground.

Forest land. Land at least 10 percent stocked with trees of any size or that formerly had such tree cover and is not currently developed for nonforest use. The minimum area for classification of forest land is 1 acre.

Geographic unit. A county or a group of counties within a state that is large enough from which to draw sample plots which will yield statistically reliable estimates of timberland area, volume, and components of change.

Growing-stock trees. Live trees of commercial species classified as sawtimber, poletimber, saplings, and seedlings; that is, all live trees of commercial species except rough and rotten trees.

Ingrowth. The estimated net volume of growing-stock trees that became 5.0 inches dbh or larger during the period between inventories, divided by the length of the period between surveys.

Land area. (a) Bureau of Census: The area of dry land and land temporarily or partly covered by water, such as marshes, swamps, and river flood plains; streams, sloughs, estuaries, and canals less than 1/8 statute mile wide; and lakes, reservoirs, and ponds less than 40 acres in area. (b) Forest Inventory and Analysis: same as (a) except that the minimum width of streams, and so on, is 120 feet, and the minimum size of lakes, and so on, is 1 acre.

Noncommercial species. Tree species of typically small size, poor form, or inferior quality that normally do not develop into trees suitable for industrial wood products.

Unsalvable dead tree. A dead tree with most or all of its bark missing that is at least 5.0 inches in dbh and is at least 10 feet in height.

Poletimber trees. Live trees of commercial species meeting regional specifications of soundness and form and at least 5.0 inches dbh, but smaller than sawtimber trees.

Preferred tree. A high-quality tree, from a timber viewpoint, that would be favored in cultural operations. General characteristics include grade 1 butt log (if sawtimber size), good form, good vigor, and freedom from serious damage.

Rotten tree. A live tree of commercial species that does not contain at least one 12-foot sawlog or two noncontiguous sawlogs, each 8 feet or longer, now or prospectively, and does not meet regional specifications for freedom from defect primarily because of rot; that is, when more than 50 percent of the cull volume in the tree is rotten.

Rough tree. (a) The same as a rotten tree, except that a rough tree does not meet regional specifications for freedom from defect primarily because of roughness or poor form, and (b) a live tree of noncommercial species.

Salvable dead tree. A tree at least 5.0 inches dbh that has recently died and still has intact bark. The tree may be standing, fallen, windthrown, knocked down, or broken off.

Sampling error. A measure of the reliability of an estimate, expressed as a percentage of the estimate. The sampling errors given in this report correspond to one standard deviation; and are calculated as the square root of the variance, divided by the estimate, and multiplied by 100.

Saplings. Live trees 1.0 through 4.9 inches dbh.

Sawlog. A log meeting regional standards of diameter, length, and defect, including a minimum 8-foot length and a minimum diameter inside bark of 6 inches for softwoods and 8 inches for hardwoods.

Sawtimber trees. Live trees of commercial species at least 9.0 inches dbh for softwoods or 11.0 inches for hardwoods containing at least one 12-foot sawlog or two noncontiguous 8-foot sawlogs, and meeting regional specifications for freedom from defect.

Seedlings. Live trees less than 1.0 inch dbh and at least 1 foot in height.

Softwoods. Coniferous trees, usually evergreen and having needles or scalelike leaves.

Timberland. Forest land producing or capable of producing crops of industrial wood (more than 20 cubic feet per acre per year) and not withdrawn from timber utilization. Formerly known as commercial forest land.

Tree class. A classification of the quality or condition of trees for sawlog production. Tree class for sawtimber trees is based on their present condition. Tree class for poletimber trees is a prospective determination--a forecast of their potential quality when they reach sawtimber size (11.0 inches dbh for hardwoods, 9.0 inches dbh for softwoods).

Trees. Woody plants that have well-developed stems and are usually more than 12 feet in height at maturity.

Tree species of Maine (as encountered on field plots)

Scientific Name[a]	Common Name(s)	Occurrence[b]
	SOFTWOODS	
Abies balsamea (L.) Mill.	balsam fir	vc
Juniperus virginiana L.	eastern redcedar	vr
Larix laricina (Du Roi) K. Koch	tamarack, eastern larch, hackmatack	c
Picea abies (L.) Karst.	Norway spruce	vr
P. glauca (Moench) Voss	white spruce	c
P. mariana (Mill.) B.S.P.	black spruce	c
P. rubens Sarg.	red spruce	vc
Pinus resinosa Ait.	red or Norway pine	r
P. rigida Mill.	pitch pine	vr
P. strobus L.	eastern white pine	c
Thuja occidentalis L.	northern white-cedar	vc
Tsuga canadensis (L.) Carr.	eastern hemlock	c
	HARDWOODS	
Acer pensylvanicum L.[c]	striped maple, moosewood	c
A. rubrum L.	red, soft, or swamp maple	vc
A. saccharinum L.	silver or soft maple	vr
A. saccharum Marsh.	sugar, rock, or hard maple	c
A. spicatum Lam.[c]	mountain maple	vr
Ailanthus altissima (Mill.) Swingle[c]	Ailanthus, tree-of-heaven	vr
Betula alleghaniensis Britton	yellow birch	c
B. lenta L.	sweet, black, or cherry birch	vr
B. papyrifera Marsh.	paper, white, or canoe birch	vc
B. populifolia Marsh.	gray birch	c
Carpinus caroliniana Walt.[c]	American hornbeam, blue-beech	vr
Carya spp. Nutt.	hickory	vr
Fagus grandifolia Ehrh.	American beech	c
Fraxinus americana L.	white ash	c
F. nigra Marsh.	black or brown ash	c
F. pennsylvanica Marsh.	green or red ash	r
Juglans cinera L.[c]	butternut	vr
Malus spp. Mill.[c]	apple	r
Nyssa sylvatica Marsh.	blackgum or black tupelo	vr
Ostrya virginiana (Mill.) K. Koch[c]	eastern hophornbeam or ironwood	r
Populus balsamifera L.	balsam poplar	r
P. grandidentata Michx.	bigtooth aspen, poplar, or popple	c
P. tremuloides Michx.	quaking or trembling aspen, popple	c
Prunus pensylvanica L.f.[c]	pin or fire cherry	r
P. serotina Ehrh.	black cherry	r
Quercus alba L.	white oak	r
Q. coccinea Muenchh.	scarlet oak	vr
Q. rubra L.	northern red oak	c
Q. velutina Lam.	black or yellow oak	r
Robinia pseudoacacia L.	black locust	vr
Salix spp. L.[c]	willow	vr
S. nigra Marsh.	black willow	vr
Tilia americana L.	American basswood	r
Ulmus americana L.	American elm	r
U. rubra Muhl.	slippery or red elm	vr

[a]Names according to: Little, Elbert L., Jr. Checklist of United States trees (native and naturalized). Agric. Handb. 541. Washington, DC: U.S. Department of Agriculture, Forest Service; 1979. 375 p.

[b]Occurrence is based on the proportion of the species among all live trees 5.0 inches dbh or larger encountered on forest survey field plots: vr = very rare (<0.05%), r = rare (0.05 to 0.49%), c = common (0.5 to 4.9%), and vc = very common (≥5.0%).

[c]Noncommercial species.

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Table 1.--Number of all live trees on timberland by species and diameter class, Maine, 1982[a]

Species	Diameter class (inches at breast height)										All classes	Sampling error of all classes
	Less than 1.0[b]	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17+		
	Thousand trees											Percent
Balsam fir	20,921,795	2,233,681	809,617	465,156	231,577	87,268	25,030	5,677	1,420	182	24,781,403	4
Tamarack	57,943	20,388	21,682	8,942	3,779	3,021	1,605	754	301	348	118,763	25
White spruce	303,050	60,203	78,562	43,396	24,075	11,891	4,846	1,903	622	347	528,895	11
Black spruce	566,345	104,240	81,891	56,493	21,346	7,864	1,858	947	126	58	841,168	20
Red spruce	4,472348	538,578	315,923	274,872	180,767	95,382	46,161	21,285	7,760	5,031	5,958,107	6
Red pine	14,807	1,936	1,685	1,139	1,331	1,494	1,325	554	370	101	24,742	37
White pine	450,444	138,690	71,972	47,098	31,154	22,651	16,384	10,589	7,230	10,869	807,081	8
Northern white-cedar	3,069,840	248,421	193,013	129,676	96,253	55,465	33,492	15,744	6,973	4,559	3,853,436	9
Hemlock	1,326,148	145,033	98,204	67,813	45,204	28,572	18,634	9,322	5,260	3,943	1,748,133	9
Other softwoods	0	0	840	314	528	343	153	176	50	10	2,414	41
Total softwoods	31,182,720	3,491,170	1,673,389	1,094,899	636,014	313,951	149,488	66,951	30,112	25,448	38,664,142	3
Sugar maple	8,349,888	328,211	97,168	54,813	38,722	22,030	14,100	9,165	5,085	9,354	8,928,536	8
Soft maples	8,672,269	890,945	301,044	182,868	101,395	49,984	23,906	10,665	4,459	4,609	10,242,144	4
Yellow birch	4,236,980	264,006	58,640	40,643	31,683	22,286	13,661	7,420	4,929	6,362	4,686,610	8
Paper birch	3,064,981	321,997	169,164	108,344	63,061	27,982	10,162	3,482	1,365	760	3,771,298	7
Gray birch	644,655	151,315	91,218	28,720	4,375	729	288	108	64	9	921,481	12
Beech	3,588,022	511,511	129,212	67,556	38,569	23,625	13,768	7,858	4,057	2,439	4,386,617	7
White ash	1,396,627	74,584	27,932	13,512	10,416	6,142	2,640	1,077	476	484	1,533,890	10
Black ash	504,437	57,365	26,005	15,072	7,562	3,079	1,748	797	243	216	616,524	14
Aspen	2,861,633	204,231	100,088	74,202	55,166	33,927	15,308	6,933	2,034	1,479	3,355,001	12
White oaks	107,162	9,244	7,632	2,902	1,045	259	57	90	75	133	128,599	37
Red oaks	614,992	74,157	36,386	22,154	14,593	7,112	4,403	2,276	1,168	1,192	778,433	15
Basswood	70,912	12,302	1,677	848	805	302	360	160	97	180	87,643	28
Elm	92,684	10,683	6,342	2,579	1,612	437	254	415	70	279	115,355	45
Other hardwoods	970,114	53,040	14,040	6,126	2,696	861	435	176	117	71	1,047,676	12
Noncomm. hardwoods	14,277,034	707,324	138,925	38,100	7,233	1,152	250	252	88	91	15,170,449	4
Total hardwoods	49,452,390	3,670,915	1,205,473	658,439	378,933	199,907	101,340	50,874	24,327	27,658	55,770,256	3
Total, all species	80,635,110	7,162,085	2,878,862	1,753,338	1,014,947	513,858	250,828	117,825	54,439	53,106	94,434,398	1.9
Sampling error of total (percent)	2	3	3	2	2	2	2	2	3	3	1.9	

[a] In this and other tables zeroes indicate no data or negligible amounts.
[b] This is the seedling size class. The minimum size for seedlings is a total height of 1 foot.

Table 2.--Number of all live trees on timberland by species and diameter class, Aroostook County, Maine, 1982

Species	Diameter class (inches at breast height)										All classes	Sampling error of all classes
	Less than 1.0[a]	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17+		
	Thousand trees											Percent
Balsam fir	4,948,098	375,369	205,303	135,766	73,269	30,274	10,063	2,014	513	142	5,780,811	7
Tamarack	34,537	8,700	3,468	2,431	850	881	449	271	134	254	51,975	44
White spruce	119,238	23,890	23,911	15,612	10,611	5,458	2,827	955	346	107	202,955	15
Black spruce	185,695	42,557	20,414	30,481	11,492	3,764	633	152	0	29	295,217	25
Red spruce	682,764	73,313	44,295	50,788	37,375	20,891	11,480	5,064	2,018	1,375	929,363	10
Red pine	1,689	0	0	0	0	0	0	0	0	0	1,689	100
White pine	18,868	1,723	0	1,380	592	233	400	269	181	467	24,113	28
Northern white-cedar	1,253,617	99,571	80,944	46,834	35,243	21,782	14,708	7,258	3,142	2,001	1,565,100	14
Hemlock	80,061	5,183	10,351	3,284	2,482	1,404	1,595	507	478	595	105,940	25
Other softwoods	0	0	0	0	58	0	0	0	0	0	58	100
Total softwoods	7,324,567	630,306	388,686	286,576	171,972	84,687	42,155	16,490	6,812	4,970	8,957,221	6
Sugar maple	2,230,309	97,801	30,789	18,375	10,682	6,307	3,639	2,730	1,755	3,901	2,406,288	13
Soft maples	1,929,629	122,134	49,704	20,858	9,765	5,360	2,288	1,484	699	646	2,142,567	8
Yellow birch	1,056,214	49,751	6,860	7,341	5,329	3,850	2,792	1,449	908	1,114	1,135,608	10
Paper birch	428,439	46,105	37,539	16,060	8,781	3,818	877	272	142	46	542,079	15
Gray birch	3,446	0	1,723	177	0	0	0	0	0	0	5,346	97
Beech	906,191	61,693	17,145	10,842	6,711	4,425	4,264	2,870	1,800	1,023	1,016,964	15
White ash	110,159	6,873	5,127	650	668	598	170	0	79	63	124,387	25
Black ash	135,928	17,229	5,173	3,162	2,034	942	659	244	140	93	165,604	28
Aspen	1,017,237	66,784	20,668	19,012	14,888	9,943	4,647	1,977	708	429	1,156,293	22
White oaks	0	0	0	0	0	0	0	0	0	0	0	-
Red oaks	0	0	0	0	0	0	40	30	0	0	70	100
Basswood	13,994	3,499	0	59	0	0	0	0	0	0	17,552	100
Elm	8,654	1,733	1,723	680	238	118	92	29	0	8	13,275	69
Other hardwoods	80,125	0	0	119	0	0	37	0	0	0	80,281	54
Noncomm. hardwoods	3,329,544	144,512	22,308	4,153	820	469	0	54	27	0	3,501,887	8
Total hardwoods	11,249,869	618,114	198,759	101,488	59,916	35,830	19,505	11,139	6,258	7,323	12,308,201	5
Total, all species	18,574,436	1,248,420	587,445	388,064	231,888	120,517	61,660	27,629	13,070	12,293	21,265,422	3.5
Sampling error of total (percent)	4	6	7	3	3	3	4	5	7	6	3.5	

[a]This is the seedling size class. The minimum size for seedlings is a total height of 1 foot.

Table 3.--Number of all live trees on timberland by species and diameter class, Capital Region, Maine, 1982

Species	Diameter class (inches at breast height)										All classes	Sampling error of all classes
	Less than 1.0[a]	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17+		
	Thousand trees											Percent
Balsam fir	765,852	184,696	64,935	17,704	5,675	1,381	189	43	9	0	1,040,484	8
Tamarack	1,704	0	826	605	627	286	236	155	93	24	4,556	43
White spruce	6,604	625	1,623	1,225	557	309	185	73	9	15	11,225	38
Black spruce	10,192	0	0	91	63	14	0	0	0	0	10,360	99
Red spruce	65,417	19,739	7,467	9,847	5,710	3,228	1,621	950	374	214	114,567	16
Red pine	830	0	0	0	0	14	28	33	11	0	916	91
White pine	37,426	20,841	10,086	7,542	5,254	4,082	3,173	1,879	925	1,742	92,950	14
Northern white-cedar	58,445	14,808	6,635	5,294	3,152	1,372	388	76	37	0	90,207	28
Hemlock	55,524	13,226	11,640	5,535	3,771	3,253	1,760	1,215	624	393	96,941	16
Other softwoods	0	0	0	0	0	0	0	0	0	0	0	-
Total softwoods	1,001,994	253,935	103,212	47,843	24,809	13,939	7,580	4,424	2,082	2,388	1,462,206	7
Sugar maple	74,470	14,063	7,466	3,035	2,006	850	290	90	25	94	102,389	26
Soft maples	370,082	113,487	31,682	20,747	11,804	5,518	2,716	990	415	632	558,073	10
Yellow birch	65,325	11,759	8,272	1,683	1,188	652	289	205	58	24	89,455	26
Paper birch	181,923	17,976	22,712	8,631	4,456	1,837	709	264	78	20	238,606	20
Gray birch	118,245	25,014	19,676	6,687	978	61	14	0	23	9	170,707	18
Beech	161,717	35,465	11,607	4,001	2,430	1,050	552	128	68	60	217,078	27
White ash	214,164	19,747	812	2,048	1,333	752	213	101	87	54	239,311	16
Black ash	9,903	829	0	537	65	25	0	15	0	14	11,388	44
Aspen	197,889	28,181	12,486	8,930	5,454	2,549	985	358	62	9	256,903	19
White oaks	1,662	816	0	89	57	0	0	0	0	14	2,638	56
Red oaks	124,192	26,670	8,303	5,225	3,716	2,093	1,575	588	390	365	173,117	15
Basswood	10,733	3,295	829	156	283	85	56	42	40	18	15,537	35
Elm	5,777	818	1,654	310	259	113	57	58	0	0	9,046	45
Other hardwoods	276,836	20,792	3,401	1,955	1,116	637	129	45	42	5	304,958	20
Noncomm. hardwoods	645,312	53,319	7,284	1,925	884	137	70	14	33	49	709,027	17
Total hardwoods	2,458,230	372,231	136,184	65,959	36,029	16,359	7,655	2,898	1,321	1,367	3,098,233	7
Total, all species	3,460,224	626,166	239,396	113,802	60,838	30,298	15,235	7,322	3,403	3,755	4,560,439	5.0
Sampling error of total (percent)	6	6	8	4	4	5	6	7	9	7	5.0	

[a]This is the seedling size class. The minimum size for seedlings is a total height of 1 foot.

Table 4.--Number of all live trees on timberland by species and diameter class, Casco Bay, Maine, 1982

Species	Diameter class (inches at breast height)										All classes	Sampling error of all classes
	Less than 1.0[a]	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17+		
	Thousand trees											Percent
Balsam fir	379,195	75,875	17,897	5,234	1,948	967	166	30	0	0	481,312	16
Tamarack	0	824	823	272	0	53	85	44	0	0	2,101	92
White spruce	0	0	0	102	40	0	0	0	0	0	142	82
Black spruce	842	0	0	407	0	0	14	0	0	0	1,263	76
Red spruce	78,716	15,650	4,194	1,562	931	669	290	137	38	0	102,187	72
Red pine	1,594	0	1,685	280	265	325	253	85	27	0	4,514	40
White pine	113,992	72,640	37,458	17,681	12,281	8,573	5,683	3,714	2,983	3,429	278,434	11
Northern white-cedar	22,182	0	0	509	270	114	36	0	0	0	23,111	97
Hemlock	255,719	50,379	12,689	9,599	6,754	4,724	3,578	2,216	1,097	844	347,599	15
Other softwoods	0	0	840	244	470	263	153	176	50	10	2,206	44
Total softwoods	852,240	215,368	75,586	35,890	22,959	15,688	10,258	6,402	4,195	4,283	1,242,869	10
Sugar maple	116,036	20,375	6,806	1,471	659	304	111	146	44	105	146,057	21
Soft maples	654,192	164,800	52,089	27,108	12,757	5,400	2,365	920	334	355	920,320	9
Yellow birch	45,533	9,244	866	1,523	995	330	180	72	13	43	58,799	26
Paper birch	187,860	37,233	16,887	6,484	3,163	1,462	367	162	59	38	253,715	16
Gray birch	222,506	56,914	19,390	3,722	625	85	59	0	12	0	303,313	21
Beech	121,188	31,538	9,395	3,466	2,176	635	481	194	93	113	169,279	16
White ash	178,425	20,370	7,617	2,909	1,119	420	132	14	26	54	211,086	16
Black ash	3,103	3,404	0	271	107	0	0	0	0	0	6,885	47
Aspen	196,560	19,755	7,601	6,680	4,293	1,743	332	132	29	6	237,131	23
White oaks	40,703	8,428	7,632	1,596	718	259	57	90	75	98	59,656	27
Red oaks	269,381	32,814	23,721	11,551	8,204	3,149	1,934	1,211	387	508	352,860	11
Basswood	11,938	3,408	848	125	28	0	0	14	0	0	16,361	46
Elm	10,847	0	863	87	227	0	18	14	0	0	12,056	72
Other hardwoods	216,143	15,222	2,566	1,323	513	83	88	64	15	14	236,031	19
Noncomm. hardwoods	600,728	47,159	4,244	946	217	112	0	0	0	6	653,412	22
Total hardwoods	2,875,143	470,664	160,525	69,262	35,801	13,982	6,124	3,033	1,087	1,340	3,636,961	7
Total, all species	3,727,383	686,032	236,111	105,152	58,760	29,670	16,382	9,435	5,282	5,623	4,879,830	6.0
Sampling error of total (percent)	7	6	8	4	4	5	5	6	9	7	6.0	

[a]This is the seedling size class. The minimum size for seedlings is a total height of 1 foot.

Table 5.--Number of all live trees on timberland by species and diameter class, Hancock County, Maine, 1982

Species	Diameter class (inches at breast height)										All classes	Sampling error of all classes
	Less than 1.0[a]	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17+		
	Thousand trees											Percent
Balsam fir	944,538	208,812	49,314	20,785	5,845	1,256	284	33	0	0	1,230,867	14
Tamarack	11,626	0	0	419	138	311	34	67	0	34	12,629	94
White spruce	16,154	1,938	0	851	261	134	66	67	0	0	19,471	74
Black spruce	6,045	5,967	10,074	2,120	918	244	34	67	0	0	25,469	61
Red spruce	375,348	81,386	27,788	14,165	10,845	6,618	3,469	1,285	665	415	521,984	24
Red pine	0	0	0	0	0	206	130	70	0	21	427	62
White pine	17,439	1,938	4,030	1,601	859	644	783	247	372	348	28,261	44
Northern white-cedar	185,233	23,885	9,920	6,627	4,587	2,252	1,181	185	296	0	234,166	38
Hemlock	31,784	1,938	7,794	4,830	2,156	2,146	1,132	278	300	314	52,672	34
Other softwoods	0	0	0	0	0	0	0	0	0	0	0	-
Total softwoods	1,588,167	325,864	108,920	51,398	25,609	13,811	7,113	2,299	1,633	1,132	2,125,946	11
Sugar maple	5,890	3,875	3,953	1,211	136	274	79	103	133	114	15,768	60
Soft maples	143,779	39,008	15,923	12,180	6,886	2,639	1,072	439	305	251	222,482	19
Yellow birch	241,630	14,104	3,953	1,976	1,644	1,003	342	175	158	172	265,157	68
Paper birch	27,525	9,997	7,751	8,814	4,074	1,510	368	72	0	42	60,153	28
Gray birch	32,942	7,751	3,875	1,585	136	0	34	0	0	0	46,323	57
Beech	54,874	38,986	9,689	3,659	611	392	117	98	25	68	108,519	40
White ash	9,997	0	5,813	749	256	209	155	135	25	51	17,390	57
Black ash	32,161	0	2,015	622	0	63	125	35	34	0	35,055	94
Aspen	91,539	7,863	5,926	3,479	2,605	1,813	575	329	0	42	114,171	41
White oaks	0	0	0	0	0	0	0	0	0	0	0	-
Red oaks	0	1,938	0	309	256	133	0	33	59	22	2,750	73
Basswood	0	0	0	0	0	0	0	0	0	0	0	-
Elm	0	0	0	0	0	0	0	0	0	0	0	-
Other hardwoods	37,566	0	3,875	200	133	0	0	0	0	0	41,774	47
Noncomm. hardwoods	205,730	9,891	7,905	683	410	69	0	0	0	0	224,688	28
Total hardwoods	883,633	133,413	70,678	35,467	17,147	8,105	2,867	1,419	739	762	1,154,230	20
Total, all species	2,471,800	459,277	179,598	86,865	42,756	21,916	9,980	3,718	2,372	1,894	3,280,176	9.0
Sampling error of total (percent)	11	12	14	8	7	9	12	14	15	15	9.0	

[a]This is the seedling size class. The minimum size for seedlings is a total height of 1 foot.

Table 6.--Number of all live trees on timberland by species and diameter class, Penobscot County, Maine, 1982

Species	Diameter class (inches at breast height)										All classes	Sampling error of all classes
	Less than 1.0[a]	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17+		
	Thousand trees											Percent
Balsam fir	3,071,794	258,481	58,478	42,936	16,131	4,439	640	73	34	0	3,453,006	11
Tamarack	7,778	0	5,807	1,995	1,129	554	308	108	0	0	17,679	46
White spruce	44,787	5,825	7,743	3,466	1,388	507	172	130	91	87	64,196	29
Black spruce	27,124	9,679	1,936	2,058	486	317	80	34	0	0	41,714	65
Red spruce	451,700	40,741	29,124	23,544	18,552	11,055	5,271	2,382	510	137	583,016	15
Red pine	0	1,936	0	217	250	289	490	130	126	15	3,453	62
White pine	110,827	11,691	9,738	2,857	1,664	1,544	1,125	973	660	1,193	142,272	25
Northern white-cedar	583,279	39,033	38,946	35,114	21,976	9,197	4,529	1,629	311	211	734,225	22
Hemlock	559,429	30,810	20,946	17,964	13,017	6,769	4,548	1,987	857	579	656,906	20
Other softwoods	0	0	0	0	0	0	0	0	0	0	0	-
Total softwoods	4,856,718	398,196	172,718	130,151	74,593	34,671	17,163	7,446	2,589	2,222	5,696,467	10
Sugar maple	677,552	31,059	7,639	5,151	4,279	2,412	1,264	993	436	626	731,411	25
Soft maples	986,797	70,016	31,113	20,039	11,732	5,612	2,998	1,236	321	484	1,130,348	12
Yellow birch	601,342	9,738	1,936	5,401	2,910	1,948	955	441	299	293	625,263	19
Paper birch	201,231	23,246	15,528	6,607	4,807	2,960	945	348	151	73	255,896	25
Gray birch	107,668	11,656	21,381	6,492	866	0	0	0	0	0	148,063	30
Beech	715,711	88,762	25,224	14,008	8,111	3,490	2,135	971	336	255	859,003	18
White ash	194,229	0	0	1,991	1,071	864	570	296	67	44	199,132	26
Black ash	124,903	1,953	5,880	3,917	1,227	685	331	272	0	50	139,218	35
Aspen	359,815	11,562	5,772	7,295	7,212	6,239	2,910	1,490	180	125	402,600	41
White oaks	1,953	0	0	456	196	0	0	0	0	0	2,605	79
Red oaks	11,657	1,953	0	268	67	67	127	0	133	33	14,305	50
Basswood	15,486	0	0	267	201	0	132	71	57	53	16,267	67
Elm	48,393	3,907	0	733	487	0	34	170	33	271	54,028	90
Other hardwoods	67,891	1,954	0	864	134	67	66	33	0	0	71,009	58
Noncomm. hardwoods	1,351,145	75,723	9,696	2,643	552	139	33	0	0	0	1,439,931	15
Total hardwoods	5,465,773	331,529	124,169	76,132	43,852	24,483	12,500	6,321	2,013	2,307	6,089,079	9
Total, all species	10,322,491	729,725	296,887	206,283	118,445	59,154	29,663	13,767	4,602	4,529	11,785,546	6.0
Sampling error of total (percent)	7	8	10	4	4	5	6	7	11	10	6.0	

[a] This is the seedling size class. The minimum size for seedlings is a total height of 1 foot.

Table 7.--Number of all live trees on timberland by species and diameter class, Piscataquis County, Maine, 1982

Species	Diameter class (inches at breast height)										All classes	Sampling error of all classes
	Less than 1.0[a]	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17+		
	Thousand trees											Percent
Balsam fir	3,588,291	237,685	129,450	72,159	38,548	14,657	3,761	771	170	0	4,085,492	9
Tamarack	0	4,258	4,255	1,939	294	432	170	73	0	0	11,421	69
White spruce	48,041	17,430	17,442	6,142	3,321	1,977	758	233	36	115	95,495	30
Black spruce	26,776	6,438	4,255	5,596	2,591	1,442	807	476	101	29	48,511	29
Red spruce	1,199,345	97,429	87,138	70,265	40,841	20,026	8,898	5,264	2,002	1,356	1,532,564	14
Red pine	0	0	0	0	0	0	0	0	0	0	0	-
White pine	35,578	6,408	0	2,922	1,489	1,348	920	309	455	1,176	50,605	29
Northern white-cedar	491,791	17,209	19,521	10,476	12,020	8,505	5,629	2,915	1,829	1,383	571,278	30
Hemlock	55,983	4,255	6,401	3,761	2,440	1,819	943	413	441	487	76,943	35
Other softwoods	0	0	0	0	0	0	0	0	0	0	0	-
Total softwoods	5,445,805	391,112	268,462	173,260	101,544	50,206	21,886	10,454	5,034	4,546	6,472,309	8
Sugar maple	2,134,110	19,296	4,274	5,213	5,098	3,363	2,430	1,840	751	1,706	2,178,081	21
Soft maples	1,569,651	44,902	11,071	15,987	10,441	6,259	3,468	1,382	752	703	1,664,616	13
Yellow birch	797,575	51,003	11,071	4,681	4,039	3,426	2,391	1,099	777	1,043	877,105	14
Paper birch	381,257	59,659	12,843	9,416	4,531	2,423	907	404	180	86	471,706	27
Gray birch	4,255	0	2,128	527	73	74	37	36	0	0	7,130	66
Beech	511,871	88,809	8,566	8,076	5,406	4,815	2,219	1,569	682	326	632,339	16
White ash	254,147	8,551	0	775	939	540	177	121	36	41	265,327	43
Black ash	111,273	6,420	2,146	1,921	1,476	404	122	157	31	29	123,979	31
Aspen	149,572	8,520	8,321	2,533	4,102	3,326	1,407	923	354	326	179,384	34
White oaks	0	0	0	0	0	0	0	0	0	0	0	-
Red oaks	11,060	0	0	0	0	0	0	36	0	97	11,193	59
Basswood	0	0	0	73	184	74	99	33	0	0	463	51
Elm	4,255	2,127	0	0	129	73	0	0	0	0	6,584	97
Other hardwoods	177,367	6,288	0	0	143	0	60	0	0	0	183,858	39
Noncomm. hardwoods	2,064,434	73,561	8,584	6,348	911	0	73	37	0	0	2,153,948	9
Total hardwoods	8,170,827	369,136	69,004	55,550	37,472	24,777	13,390	7,637	3,563	4,357	8,755,713	8
Total, all species	13,616,632	760,248	337,466	228,810	139,016	74,983	35,276	18,091	8,597	8,903	15,228,022	6.0
Sampling error of total (percent)	7	11	10	6	5	5	5	6	9	7	6.0	

[a]This is the seedling size class. The minimum size for seedlings is a total height of 1 foot.

Table 8.--Number of all live trees on timberland by species and diameter class, Somerset County, Maine, 1982

Species	Diameter class (inches at breast height)										All classes	Sampling error of all classes
	Less than 1.0[a]	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17+		
	Thousand trees											Percent
Balsam fir	2,754,003	313,657	128,435	75,956	48,862	19,037	4,490	1,290	409	16	3,346,155	12
Tamarack	0	2,102	0	361	0	134	36	0	36	0	2,669	80
White spruce	33,580	10,495	14,697	7,437	2,823	1,357	402	226	72	0	71,089	26
Black spruce	138,757	6,311	10,507	8,551	3,154	876	116	72	25	0	168,369	40
Red spruce	716,737	88,468	54,974	48,288	31,479	15,338	6,806	3,103	976	603	966,772	14
Red pine	6,307	0	0	288	668	548	275	0	36	21	8,143	98
White pine	23,090	6,297	6,297	2,888	2,477	1,370	946	714	337	795	45,211	31
Northern white-cedar	285,805	21,023	6,301	8,435	10,105	6,889	4,768	2,596	995	728	347,645	25
Hemlock	46,206	4,198	4,205	5,270	3,604	1,775	1,001	658	501	417	67,835	32
Other softwoods	0	0	0	0	0	0	0	0	0	0	0	-
Total softwoods	4,004,485	452,551	225,416	157,474	103,172	47,324	18,840	8,659	3,387	2,580	5,023,888	10
Sugar maple	1,782,970	48,433	10,566	10,027	8,100	4,806	3,908	2,202	1,504	2,123	1,874,639	15
Soft maples	1,376,707	113,474	33,608	19,342	12,496	7,189	2,656	1,385	610	730	1,568,197	12
Yellow birch	515,550	77,867	8,404	7,486	6,511	3,759	2,305	1,859	1,254	1,672	626,667	15
Paper birch	586,745	42,053	12,730	19,430	9,251	4,644	2,201	686	189	106	678,035	16
Gray birch	2,100	2,098	4,204	3,824	773	82	73	37	0	0	13,191	37
Beech	406,681	42,074	14,709	8,952	5,293	3,534	2,104	965	516	416	485,244	20
White ash	128,280	4,204	4,205	1,322	1,829	1,071	424	41	0	22	141,398	29
Black ash	33,587	14,714	4,202	1,648	1,025	513	344	37	0	0	56,070	33
Aspen	245,289	8,407	2,100	8,036	6,095	2,563	1,452	648	217	275	275,082	26
White oaks	0	0	0	0	0	0	0	0	0	0	0	-
Red oaks	29,462	0	0	440	72	238	0	42	0	48	30,302	84
Basswood	2,100	2,100	0	0	109	72	36	0	0	72	4,489	94
Elm	12,590	2,098	2,102	407	0	133	0	109	0	0	17,439	57
Other hardwoods	37,828	0	4,198	559	234	0	55	34	60	52	43,020	58
Noncomm. hardwoods	2,367,296	143,121	18,966	6,745	1,761	82	36	73	28	0	2,538,108	10
Total hardwoods	7,527,185	500,643	119,994	88,218	53,549	28,686	15,594	8,118	4,378	5,516	8,351,881	6
Total, all species	11,531,670	953,194	345,410	245,692	156,721	76,010	34,434	16,777	7,765	8,096	13,375,769	5.0
Sampling error of total (percent)	6	8	10	5	4	5	5	7	9	8	5.0	

[a]This is the seedling size class. The minimum size for seedlings is a total height of 1 foot.

Table 9.--Number of all live trees on timberland by species and diameter class, Washington County, Maine, 1982

Species	Diameter class (inches at breast height)										All classes	Sampling error of all classes
	Less than 1.0[a]	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17+		
	Thousand trees											Percent
Balsam fir	2,310,786	314,970	90,125	40,078	12,666	3,500	462	37	38	0	2,772,662	12
Tamarack	2,298	4,504	2,206	846	741	231	287	36	38	36	11,223	41
White spruce	8,779	0	10,997	6,284	2,751	1,169	164	75	0	23	30,242	36
Black spruce	84,176	18,109	22,106	6,272	1,194	357	138	0	0	0	132,352	47
Red spruce	538,618	81,293	37,329	28,927	17,673	9,251	4,515	1,805	617	506	720,534	19
Red pine	4,387	0	0	76	0	38	75	115	0	0	4,691	62
White pine	41,809	0	2,194	1,261	226	664	756	376	285	457	48,028	34
Northern white-cedar	149,321	30,743	28,578	13,573	7,631	4,842	1,948	901	231	96	237,864	25
Hemlock	131,942	26,390	22,010	9,442	6,416	4,213	2,232	891	343	186	204,065	29
Other softwoods	0	0	0	0	0	0	0	0	0	0	0	-
Total softwoods	3,272,116	476,009	215,545	106,759	49,298	24,265	10,577	4,236	1,552	1,304	4,161,661	11
Sugar maple	165,146	11,029	6,585	2,114	1,533	386	395	85	37	300	187,610	40
Soft maples	540,322	91,924	44,295	16,024	8,721	3,497	2,220	1,228	377	175	708,783	17
Yellow birch	432,437	13,173	6,573	2,402	1,858	1,049	520	303	163	316	458,794	37
Paper birch	390,924	26,392	17,739	10,897	5,860	1,641	897	340	75	0	454,765	21
Gray birch	100,477	42,660	11,001	1,928	277	0	0	0	0	0	156,343	33
Beech	174,001	68,338	21,982	4,344	1,968	961	481	464	151	118	272,808	31
White ash	24,133	0	0	150	487	216	93	38	66	0	25,183	44
Black ash	32,951	6,605	6,589	2,513	1,368	308	113	37	38	0	50,522	30
Aspen	436,141	40,595	24,753	8,347	2,403	1,459	1,326	709	309	209	516,251	43
White oaks	0	0	0	0	0	0	0	0	0	0	0	-
Red oaks	2,206	0	2,193	230	508	394	162	0	0	0	5,693	59
Basswood	0	0	0	0	0	0	0	0	0	0	0	-
Elm	0	0	0	0	0	0	0	0	0	0	0	-
Other hardwoods	20,487	2,298	0	0	0	0	0	0	0	0	22,785	50
Noncomm. hardwoods	684,354	17,727	11,030	642	211	0	0	0	0	0	713,964	25
Total hardwoods	3,003,579	320,741	152,740	49,591	25,194	9,911	6,207	3,204	1,216	1,118	3,573,501	13
Total, all species	6,275,695	796,750	368,285	156,350	74,492	34,176	16,784	7,440	2,768	2,422	7,735,162	8.0
Sampling error of total (percent)	10	10	10	6	5	6	8	10	13	15	8.0	

[a]This is the seedling size class. The minimum size for seedlings is a total height of 1 foot.

Table 10.--Number of all live trees on timberland by species and diameter class, Western Maine, 1982

Species	Diameter class (inches at breast height)										All classes	Sampling error of all classes
	Less than 1.0[a]	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17+		
	Thousand trees											Percent
Balsam fir	2,159,238	264,136	65,680	54,538	28,633	11,757	4,975	1,386	247	24	2,590,614	11
Tamarack	0	0	4,297	74	0	139	0	0	0	0	4,510	95
White spruce	25,867	0	2,149	2,277	2,323	980	272	144	68	0	34,080	69
Black spruce	86,738	15,179	12,599	917	1,448	850	36	146	0	0	117,913	93
Red spruce	363,703	40,559	23,614	27,486	17,361	8,306	3,811	1,295	560	425	487,120	26
Red pine	0	0	0	278	148	74	74	121	170	44	909	44
White pine	51,415	17,152	2,169	8,966	6,312	4,193	2,598	2,108	1,032	1,262	97,207	21
Northern white-cedar	40,167	2,149	2,168	2,814	1,269	512	305	184	132	140	49,840	48
Hemlock	109,500	8,654	2,168	8,128	4,564	2,469	1,845	1,157	619	128	139,232	26
Other softwoods	0	0	0	70	0	80	0	0	0	0	150	71
Total softwoods	2,836,628	347,829	114,844	105,548	62,058	29,360	13,916	6,541	2,828	2,023	3,521,575	10
Sugar maple	1,163,405	82,280	19,090	8,216	6,229	3,328	1,984	976	400	385	1,286,293	18
Soft maples	1,101,110	131,200	31,559	30,583	16,793	8,510	4,123	1,601	646	633	1,326,758	11
Yellow birch	481,374	27,367	10,705	8,150	7,209	6,269	3,887	1,817	1,299	1,685	549,762	25
Paper birch	679,077	59,336	25,435	22,005	18,138	7,687	2,891	934	491	349	816,343	14
Gray birch	53,016	5,222	7,840	3,778	647	427	71	35	29	0	71,065	38
Beech	535,788	55,846	10,895	10,208	5,863	4,323	1,415	599	386	60	625,383	20
White ash	283,093	14,839	4,358	2,918	2,714	1,472	706	331	90	155	310,676	20
Black ash	20,628	6,211	0	481	260	139	54	0	0	30	27,803	51
Aspen	167,591	12,564	12,461	9,890	8,114	4,292	1,674	367	175	58	217,186	27
White oaks	62,844	0	0	761	74	0	0	0	0	21	63,700	70
Red oaks	167,034	10,782	2,169	4,131	1,770	1,038	565	336	199	119	188,143	54
Basswood	16,661	0	0	168	0	71	37	0	0	37	16,974	55
Elm	2,168	0	0	362	272	0	53	35	37	0	2,927	75
Other hardwoods	55,871	6,486	0	1,106	423	74	0	0	0	0	63,960	32
Noncomm. hardwoods	3,028,491	142,311	48,908	14,015	1,467	144	38	74	0	36	3,235,484	10
Total hardwoods	7,818,151	554,444	173,420	116,772	69,973	37,774	17,498	7,105	3,752	3,568	8,802,457	7
Total, all species	10,654,779	902,273	288,264	222,320	132,031	67,134	31,414	13,646	6,580	5,591	12,324,032	5.0
Sampling error of total (percent)	6	8	11	4	4	4	5	7	10	10	5.0	

[a]This is the seedling size class. The minimum size for seedlings is a total height of 1 foot.

Table 11.--Number of trees (5.0+ inches dbh) on timberland by species and tree class, Maine, 1982

Species	Tree class								Total	Sampling error of total
	Preferred	Acceptable	All growing stock	Rough cull	Rotten cull	All live	Salvable dead	Nonsalvable dead		
	Thousand trees									Percent
Balsam fir	214,357	489,213	703,570	73,415	39,327	816,312	106,836	105,348	1,028,496	3
Tamarack	5,466	9,666	15,132	2,568	1,048	18,748	1,039	1,430	21,217	16
White spruce	33,333	48,633	81,966	3,367	1,745	87,078	3,172	1,412	91,662	7
Black spruce	38,065	46,293	84,358	3,393	940	88,691	4,499	1,906	95,096	13
Red spruce	229,473	359,846	589,319	27,527	14,415	631,261	25,241	18,112	674,614	4
Red pine	2,502	2,960	5,462	800	52	6,314	82	75	6,471	32
White pine	28,066	95,653	123,719	18,680	3,575	145,974	1,949	12,072	159,995	6
Northern white-cedar	63,930	190,690	254,620	49,156	38,387	342,163	22,212	26,962	391,337	6
Hemlock	28,887	120,590	149,477	23,599	5,669	178,745	2,146	2,962	183,853	6
Other softwoods	86	1,074	1,160	385	29	1,574	132	340	2,046	27
Total softwoods	644,165	1,364,618	2,008,783	202,890	105,187	2,316,860	167,308	170,619	2,654,787	2
Sugar maple	26,083	96,328	122,411	18,694	12,160	153,265	2,360	4,391	160,016	6
Soft maples	31,197	252,914	284,111	56,257	37,518	377,886	5,134	14,628	397,648	3
Yellow birch	14,254	82,803	97,057	18,929	10,998	126,984	3,869	16,372	147,225	4
Paper birch	38,792	151,816	190,608	15,463	9,087	215,158	9,461	14,027	238,646	5
Gray birch	1,149	16,255	17,404	13,886	3,002	34,292	3,502	5,016	42,810	10
Beech	6,285	82,300	88,585	32,833	36,457	157,875	4,181	14,763	176,819	7
White ash	9,636	20,591	30,227	2,278	2,244	34,749	773	1,178	36,700	10
Black ash	2,791	14,464	17,255	7,268	4,192	28,715	4,559	4,061	37,335	13
Aspen	50,283	112,813	163,096	13,151	12,800	189,047	8,707	14,071	211,825	6
White oaks	213	2,909	3,122	1,156	283	4,561	29	14	4,604	25
Red oaks	10,053	38,381	48,434	3,430	1,037	52,901	401	638	53,940	8
Basswood	559	1,680	2,239	249	265	2,753	34	41	2,828	21
Elm	545	2,762	3,307	1,207	1,131	5,645	1,003	4,267	10,915	19
Other commercial hardwoods	666	5,998	6,664	3,370	448	10,482	757	942	12,181	14
Noncommercial hardwoods	-	-	-	37,359[a]	9,809	47,168	3,695	8,517	59,380	8
Total hardwoods	192,506	882,014	1,074,520	225,530	141,431	1,441,481	48,465	102,926	1,592,872	2
Total, all species	836,671	2,246,632	3,083,303	428,420	246,618	3,758,341	215,773	273,545	4,247,659	1.1
Sampling error of total (percent)	3	1	1	2	3	1	4	3	1.1	

[a] Includes 20,132,000 trees that, except for being noncommercial species, would qualify as growing-stock trees.

Table 12.--Number of trees (5.0+ inches dbh) on timberland by species and tree class, Aroostook County, Maine, 1982

Species	Tree class								Total	Sampling error of total
	Preferred	Acceptable	All growing stock	Rough cull	Rotten cull	All live	Salvable dead	Nonsalvable dead		
	Thousand trees									Percent
Balsam fir	105,458	122,115	227,573	13,304	11,164	252,041	38,655	18,717	309,413	14
Tamarack	2,446	1,605	4,051	690	529	5,270	363	118	5,751	27
White spruce	18,242	15,719	33,961	1,398	557	35,916	1,755	642	38,313	10
Black spruce	22,938	21,976	44,914	1,315	322	46,551	2,829	854	50,234	19
Red spruce	65,057	58,127	123,184	3,741	2,068	128,993	6,116	2,144	137,253	8
Red pine	0	0	0	0	0	0	0	0	0	-
White pine	1,280	1,945	3,225	237	59	3,521	103	648	4,272	25
Northern white-cedar	33,983	70,312	104,295	17,614	9,059	130,968	9,535	4,956	145,459	10
Hemlock	688	7,859	8,547	1,378	419	10,344	335	427	11,106	17
Other softwoods	0	58	58	0	0	58	0	0	58	100
Total softwoods	250,092	299,716	549,808	39,677	24,177	613,662	59,691	28,506	701,859	4
Sugar maple	9,150	26,948	36,098	7,787	3,505	47,390	754	1,128	49,272	11
Soft maples	5,234	23,385	28,619	7,844	4,637	41,100	1,032	1,400	43,532	10
Yellow birch	3,723	13,456	17,179	4,177	1,427	22,783	434	4,024	27,241	8
Paper birch	10,629	15,822	26,451	2,896	649	29,996	1,427	1,655	33,078	12
Gray birch	0	119	119	58	0	177	0	0	177	75
Beech	2,639	14,909	17,548	7,677	6,710	31,935	1,159	2,831	35,925	12
White ash	392	1,183	1,575	227	426	2,228	148	292	2,668	34
Black ash	1,145	3,843	4,988	1,417	868	7,273	2,184	1,006	10,463	24
Aspen	21,981	22,937	44,918	2,549	4,137	51,604	2,994	2,735	57,333	12
White oaks	0	0	0	0	0	0	0	0	0	-
Red oaks	0	70	70	0	0	70	0	0	70	100
Basswood	0	59	59	0	0	59	0	0	59	100
Elm	0	485	485	681	0	1,166	175	1,030	2,371	64
Other commercial hardwoods	0	37	37	118	0	155	188	0	343	60
Noncommercial hardwoods	-	-	-	4,137[a]	1,386	5,523	676	518	6,717	17
Total hardwoods	54,893	123,253	178,146	39,568	23,745	241,459	11,171	16,619	269,249	5
Total, all species	304,985	422,969	727,954	79,245	47,922	855,121	70,862	45,125	971,108	2.4
Sampling error of total (percent)	5	3	3	5	7	2	6	7	2.4	

[a] Includes 2,645,000 trees that, except for being noncommercial species, would qualify as growing-stock trees.

Table 13.--Number of trees (5.0+ inches dbh) on timberland by species and tree class, Capital Region, Maine, 1982

Species	Tree class								Total	Sampling error of total
	Preferred	Acceptable	All growing stock	Rough cull	Rotten cull	All live	Salvable dead	Nonsalvable dead		
	Thousand trees									Percent
Balsam fir	3,090	19,787	22,877	897	1,227	25,001	1,208	4,765	30,974	9
Tamarack	263	1,596	1,859	40	127	2,026	98	140	2,264	26
White spruce	296	1,755	2,051	138	184	2,373	28	28	2,429	31
Black spruce	46	93	139	0	29	168	0	0	168	52
Red spruce	2,614	18,072	20,686	611	648	21,945	366	928	23,239	16
Red pine	11	59	70	16	0	86	0	0	86	46
White pine	2,470	18,231	20,701	2,866	1,030	24,597	137	2,064	26,798	11
Northern white-cedar	542	7,180	7,722	1,080	1,517	10,319	658	938	11,915	20
Hemlock	1,663	12,646	14,309	1,776	465	16,550	17	213	16,780	15
Other softwoods	0	0	0	0	0	0	0	0	0	-
Total softwoods	10,995	79,419	90,414	7,424	5,227	103,065	2,512	9,076	114,653	5
Sugar maple	511	4,883	5,394	701	295	6,390	29	66	6,485	17
Soft maples	2,282	33,997	36,279	3,531	3,011	42,821	131	906	43,858	7
Yellow birch	306	2,815	3,121	729	248	4,098	15	305	4,418	16
Paper birch	1,975	12,564	14,539	1,104	352	15,995	291	717	17,003	10
Gray birch	0	2,459	2,459	4,861	452	7,772	522	786	9,080	16
Beech	359	4,345	4,704	1,126	2,459	8,289	15	74	8,378	17
White ash	1,030	3,276	4,306	144	139	4,589	93	0	4,682	16
Black ash	0	430	430	113	113	656	11	93	760	52
Aspen	1,931	14,411	16,342	891	1,114	18,347	627	1,125	20,099	13
White oaks	0	118	118	14	28	160	0	0	160	52
Red oaks	1,779	11,553	13,332	337	284	13,953	401	135	14,489	15
Basswood	0	521	521	113	46	680	0	0	680	44
Elm	45	341	386	100	311	797	273	868	1,938	26
Other commercial hardwoods	187	2,909	3,096	776	57	3,929	28	508	4,465	21
Noncommercial hardwoods	-	-	-	2,555[a]	557	3,112	27	550	3,689	20
Total hardwoods	10,405	94,622	105,027	17,095	9,466	131,588	2,463	6,133	140,184	4
Total, all species	21,400	174,041	195,441	24,519	14,693	234,653	4,975	15,209	254,837	2.8
Sampling error of total (percent)	11	4	3	7	8	3	12	8	2.8	

[a] Includes 940,000 trees that, except for being noncommercial species, would qualify as growing-stock trees.

Table 14.--Number of trees (5.0+ inches dbh) on timberland by species and tree class, Casco Bay, Maine, 1982

Species	Tree class								Total	Sampling error of total
	Preferred	Acceptable	All growing stock	Rough cull	Rotten cull	All live	Salvable dead	Nonsalvable dead		
	Thousand trees									Percent
Balsam fir	1,274	5,958	7,232	889	224	8,345	564	1,951	10,860	18
Tamarack	14	426	440	14	0	454	0	50	504	60
White spruce	0	142	142	0	0	142	0	0	142	82
Black spruce	173	248	421	0	0	421	29	0	450	79
Red spruce	841	2,220	3,061	531	35	3,627	483	595	4,705	24
Red pine	406	745	1,151	84	0	1,235	0	0	1,235	41
White pine	9,646	33,037	42,683	10,642	1,020	54,345	578	3,312	58,235	7
Northern white-cedar	0	807	807	107	15	929	57	28	1,014	99
Hemlock	4,980	19,014	23,994	4,166	651	28,811	335	700	29,846	11
Other softwoods	86	946	1,032	305	29	1,366	132	340	1,838	29
Total softwoods	17,420	63,543	80,963	16,738	1,974	99,675	2,178	6,976	108,829	5
Sugar maple	479	1,766	2,245	316	278	2,839	0	73	2,912	22
Soft maples	2,532	34,238	36,770	8,182	4,287	49,239	290	1,021	50,550	7
Yellow birch	410	1,885	2,295	530	331	3,156	15	58	3,229	18
Paper birch	2,670	8,367	11,037	438	260	11,735	57	143	11,935	11
Gray birch	0	2,207	2,207	1,880	415	4,502	256	516	5,274	17
Beech	341	4,521	4,862	1,595	701	7,158	0	230	7,388	16
White ash	1,072	3,191	4,263	245	166	4,674	0	116	4,790	17
Black ash	0	173	173	136	69	378	29	178	585	37
Aspen	1,260	10,171	11,431	1,028	756	13,215	394	844	14,453	16
White oaks	213	1,841	2,054	605	234	2,893	29	14	2,936	20
Red oaks	5,321	19,394	24,715	1,657	573	26,945	0	245	27,190	10
Basswood	0	99	99	69	0	168	0	41	209	56
Elm	0	227	227	58	61	346	28	632	1,006	35
Other commercial hardwoods	188	1,101	1,289	556	255	2,100	143	131	2,374	26
Noncommercial hardwoods	-	-	-	1,007[a]	274	1,281	91	43	1,415	26
Total hardwoods	14,486	89,181	103,667	18,302	8,660	130,629	1,332	4,285	136,246	4
Total, all species	31,906	152,724	184,630	35,040	10,634	230,304	3,510	11,261	245,075	2.9
Sampling error of total (percent)	7	3	3	6	9	3	14	9	2.9	

[a] Includes 734,000 trees that, except for being noncommercial species, would qualify as growing-stock trees.

Table 15.--Number of trees (5.0+ inches dbh) on timberland by species and tree class, Hancock County, Maine, 1982

Species	Tree class								Total	Sampling error of total
	Preferred	Acceptable	All growing stock	Rough cull	Rotten cull	All live	Salvable dead	Nonsalvable dead		
	Thousand trees									Percent
Balsam fir	7,063	15,871	22,934	4,436	834	28,204	2,582	8,732	39,518	15
Tamarack	101	659	760	243	0	1,003	166	69	1,238	60
White spruce	669	676	1,345	34	0	1,379	0	0	1,379	38
Black spruce	1,019	2,124	3,143	240	0	3,383	138	69	3,590	39
Red spruce	12,532	21,901	34,433	2,907	122	37,462	241	1,599	39,302	15
Red pine	274	119	393	33	0	426	82	0	508	56
White pine	1,230	3,017	4,247	459	148	4,854	19	549	5,422	28
Northern white-cedar	2,336	8,516	10,852	2,922	1,354	15,128	204	2,041	17,373	25
Hemlock	846	8,002	8,848	2,174	134	11,156	200	33	11,389	24
Other softwoods	0	0	0	0	0	0	0	0	0	-
Total softwoods	26,070	60,885	86,955	13,448	2,592	102,995	3,632	13,092	119,719	8
Sugar maple	335	1,054	1,389	481	180	2,050	69	66	2,185	45
Soft maples	1,232	14,881	16,113	6,089	1,570	23,772	430	1,086	25,288	13
Yellow birch	98	3,122	3,220	1,518	732	5,470	139	377	5,986	27
Paper birch	1,604	10,362	11,966	1,568	1,346	14,880	1,147	1,006	17,033	29
Gray birch	0	882	882	873	0	1,755	271	617	2,643	40
Beech	0	859	859	2,896	1,216	4,971	159	1,843	6,973	36
White ash	513	804	1,317	187	76	1,580	0	0	1,580	45
Black ash	35	629	664	146	69	879	0	0	879	77
Aspen	1,240	6,091	7,331	770	741	8,842	637	890	10,369	27
White oaks	0	0	0	0	0	0	0	0	0	-
Red oaks	79	373	452	361	0	813	0	0	813	56
Basswood	0	0	0	0	0	0	0	0	0	-
Elm	0	0	0	0	0	0	0	0	0	-
Other commercial hardwoods	0	0	0	266	66	332	33	199	564	70
Noncommercial hardwoods	-	-	-	750[a]	412	1,162	0	848	2,010	34
Total hardwoods	5,136	39,057	44,193	15,905	6,408	66,506	2,885	6,932	76,323	10
Total, all species	31,206	99,942	131,148	29,353	9,000	169,501	6,517	20,024	196,042	5.6
Sampling error of total (percent)	11	7	6	10	13	6	18	14	5.6	

[a] Includes 274,000 trees that, except for being noncommercial species, would qualify as growing-stock trees.

Table 16.--Number of trees (5.0+ inches dbh) on timberland by species and tree class, Penobscot County, Maine, 1982

Species	Tree class								Total	Sampling error of total
	Preferred	Acceptable	All growing stock	Rough cull	Rotten cull	All live	Salvable dead	Nonsalvable dead		
	Thousand trees									Percent
Balsam fir	10,807	40,995	51,802	7,977	4,474	64,253	13,935	12,881	91,069	8
Tamarack	1,183	1,734	2,917	1,109	67	4,093	0	409	4,502	41
White spruce	1,906	3,437	5,343	432	66	5,841	268	34	6,143	18
Black spruce	925	2,050	2,975	0	0	2,975	67	100	3,142	45
Red spruce	18,878	38,458	57,336	3,461	654	61,451	3,211	2,612	67,274	10
Red pine	955	431	1,386	117	15	1,518	0	0	1,518	62
White pine	1,925	6,397	8,322	1,540	154	10,016	134	1,843	11,993	23
Northern white-cedar	10,155	42,212	52,367	12,379	8,222	72,968	2,345	6,715	82,028	11
Hemlock	7,730	30,598	38,328	6,519	873	45,720	67	575	46,362	13
Other softwoods	0	0	0	0	0	0	0	0	0	-
Total softwoods	54,464	166,312	220,776	33,534	14,525	268,835	20,027	25,169	314,031	5
Sugar maple	1,993	9,343	11,336	2,549	1,276	15,161	483	742	16,386	20
Soft maples	3,345	24,726	28,071	9,137	5,214	42,422	468	1,830	44,720	11
Yellow birch	1,202	7,369	8,571	2,856	820	12,247	299	1,007	13,553	14
Paper birch	1,960	11,301	13,261	2,321	310	15,892	490	751	17,133	18
Gray birch	634	2,586	3,220	3,552	586	7,358	1,109	1,123	9,590	26
Beech	678	16,419	17,097	7,210	5,000	29,307	999	2,607	32,913	17
White ash	1,146	2,752	3,898	704	301	4,903	233	290	5,426	29
Black ash	0	2,576	2,576	2,916	989	6,481	1,414	1,278	9,173	29
Aspen	5,590	14,241	19,831	3,896	1,723	25,450	1,080	2,006	28,536	18
White oaks	0	522	522	130	0	652	0	0	652	100
Red oaks	143	234	377	285	33	695	0	101	796	52
Basswood	65	649	714	67	0	781	34	0	815	46
Elm	185	704	889	315	524	1,728	100	833	2,661	33
Other commercial hardwoods	0	470	470	695	0	1,165	0	34	1,199	71
Noncommercial hardwoods	-	-	-	2,834[a]	532	3,366	211	334	3,911	26
Total hardwoods	16,941	93,892	110,833	39,467	17,308	167,608	6,920	12,936	187,464	6
Total, all species	71,405	260,204	331,609	73,001	31,833	436,443	26,947	38,105	501,495	3.3
Sampling error of total (percent)	9	4	4	6	8	3	10	9	3.3	

[a] Includes 1,941,000 trees that, except for being noncommercial species, would qualify as growing-stock trees.

Table 17.--Number of trees (5.0+ inches dbh) on timberland by species and tree class, Piscataquis County, Maine, 1982

Species	Tree class								Total	Sampling error of total
	Preferred	Acceptable	All growing stock	Rough cull	Rotten cull	All live	Salvable dead	Nonsalvable dead		
	Thousand trees									Percent
Balsam fir	40,760	74,280	115,040	5,689	9,336	130,065	17,820	11,924	159,809	7
Tamarack	769	1,816	2,585	322	0	2,907	302	284	3,493	47
White spruce	4,635	7,605	12,240	268	74	12,582	497	382	13,461	19
Black spruce	4,781	5,166	9,947	802	292	11,041	376	324	11,741	27
Red spruce	62,063	78,079	140,142	2,823	5,688	148,653	5,846	3,003	157,502	10
Red pine	0	0	0	0	0	0	0	0	0	-
White pine	2,588	5,797	8,385	209	25	8,619	387	502	9,508	23
Northern white-cedar	7,736	20,445	28,181	6,167	8,410	42,758	5,016	4,289	52,063	14
Hemlock	4,131	4,412	8,543	827	934	10,304	177	208	10,689	26
Other softwoods	0	0	0	0	0	0	0	0	0	-
Total softwoods	127,463	197,600	325,063	17,107	24,759	366,929	30,421	20,916	418,266	6
Sugar maple	5,378	11,552	16,930	1,307	2,163	20,400	37	903	21,340	15
Soft maples	6,268	25,136	31,404	3,281	4,307	38,992	732	1,973	41,697	12
Yellow birch	3,383	10,425	13,808	1,720	1,929	17,457	641	3,435	21,533	9
Paper birch	3,539	12,276	15,815	1,041	1,091	17,947	1,698	1,886	21,531	14
Gray birch	147	527	674	73	0	747	406	267	1,420	44
Beech	969	11,119	12,088	2,752	8,253	23,093	601	1,559	25,253	17
White ash	1,253	1,307	2,560	0	70	2,630	153	45	2,828	31
Black ash	920	2,596	3,516	188	436	4,140	415	636	5,191	32
Aspen	4,367	7,670	12,037	91	843	12,971	959	2,068	15,998	25
White oaks	0	0	0	0	0	0	0	0	0	-
Red oaks	73	60	133	0	0	133	0	0	133	78
Basswood	315	74	389	0	74	463	0	0	463	51
Elm	0	73	73	0	128	201	37	0	238	64
Other commercial hardwoods	60	0	60	143	0	203	0	0	203	77
Noncommercial hardwoods	-	-	-	5,142[a]	2,228	7,370	319	1,816	9,505	24
Total hardwoods	26,672	82,815	109,487	15,738	21,522	146,747	5,998	14,588	167,333	7
Total, all species	154,135	280,415	434,550	32,845	46,281	513,676	36,419	35,504	585,599	3.6
Sampling error of total (percent)	7	5	4	10	9	4	10	8	3.6	

[a] Includes 3,770,000 trees that, except for being noncommercial species, would qualify as growing-stock trees.

Table 18.--Number of trees (5.0+ inches dbh) on timberland by species and tree class, Somerset County, Maine, 1982

Species	Tree class								Total	Sampling error of total
	Preferred	Acceptable	All growing stock	Rough cull	Rotten cull	All live	Salvable dead	Nonsalvable dead		
	Thousand trees									Percent
Balsam fir	29,650	105,184	134,834	10,328	4,898	150,060	16,660	8,543	175,263	7
Tamarack	216	351	567	0	0	567	72	360	999	67
White spruce	3,677	8,077	11,754	490	72	12,316	74	252	12,642	17
Black spruce	4,201	8,305	12,506	216	72	12,794	714	108	13,616	37
Red spruce	38,119	63,088	101,207	4,194	1,192	106,593	3,813	1,599	112,005	11
Red pine	36	1,288	1,324	513	0	1,837	0	0	1,837	90
White pine	2,207	6,642	8,849	216	461	9,526	151	580	10,257	33
Northern white-cedar	3,542	22,719	26,261	5,145	3,110	34,516	3,190	3,149	40,855	15
Hemlock	2,785	9,308	12,093	888	246	13,227	306	72	13,605	25
Other softwoods	0	0	0	0	0	0	0	0	0	-
Total softwoods	84,433	224,962	309,395	21,990	10,051	341,436	24,980	14,663	381,079	6
Sugar maple	5,012	22,500	27,512	2,818	2,339	32,669	639	919	34,227	14
Soft maples	3,646	31,288	34,934	6,084	3,391	44,409	1,324	1,428	47,161	11
Yellow birch	2,960	17,279	20,239	3,133	1,473	24,845	1,254	3,449	29,548	10
Paper birch	4,930	28,479	33,409	1,871	1,228	36,508	1,561	3,045	41,114	14
Gray birch	72	3,444	3,516	1,092	180	4,788	288	72	5,148	31
Beech	598	11,647	12,245	3,417	6,118	21,780	690	1,943	24,413	19
White ash	845	3,215	4,060	144	505	4,709	72	182	4,963	41
Black ash	431	2,137	2,568	505	494	3,567	0	362	3,929	41
Aspen	3,848	13,989	17,837	942	507	19,286	840	1,358	21,484	23
White oaks	0	0	0	0	0	0	0	0	0	-
Red oaks	186	654	840	0	0	840	0	0	840	65
Basswood	72	72	144	0	145	289	0	0	289	53
Elm	96	553	649	0	0	649	181	468	1,298	48
Other commercial hardwoods	162	614	776	219	0	995	0	0	995	47
Noncommercial hardwoods	-	-	-	7,165[a]	1,560	8,725	951	1,191	10,867	22
Total hardwoods	22,858	135,871	158,729	27,390	17,940	204,059	7,800	14,417	226,276	6
Total, all species	107,291	360,833	468,124	49,380	27,991	545,495	32,780	29,080	607,355	3.1
Sampling error of total (percent)	8	4	8	8	10	3	9	8	3.1	

[a] Includes 2,932,000 trees that, except for being noncommercial species, would qualify as growing-stock trees.

Table 19.--Number of trees (5.0+ inches dbh) on timberland by species and tree class, Washington County, Maine, 1982

Species	Tree class								Total	Sampling error of total
	Preferred	Acceptable	All growing stock	Rough cull	Rotten cull	All live	Salvable dead	Nonsalvable dead		
	Thousand trees									Percent
Balsam fir	5,916	26,689	32,605	21,312	2,865	56,782	8,182	21,265	86,229	11
Tamarack	474	1,266	1,740	150	325	2,215	38	0	2,253	54
White spruce	3,592	5,835	9,427	394	644	10,465	163	0	10,628	29
Black spruce	3,537	3,642	7,179	631	150	7,960	76	451	8,487	54
Red spruce	24,051	30,690	54,741	5,704	2,849	63,294	1,872	2,816	67,982	12
Red pine	228	38	266	37	0	303	0	0	303	64
White pine	1,129	2,335	3,464	364	197	4,025	77	1,078	5,180	26
Northern white-cedar	5,599	15,700	21,299	2,847	5,076	29,222	913	3,860	33,995	18
Hemlock	3,814	14,931	18,745	3,596	1,382	23,723	338	694	24,755	17
Other softwoods	0	0	0	0	0	0	0	0	0	-
Total softwoods	48,340	101,126	149,466	35,035	13,488	197,989	11,659	30,164	239,812	6
Sugar maple	699	2,964	3,663	557	629	4,849	283	38	5,170	22
Soft maples	3,597	20,526	24,123	4,112	4,007	32,242	75	2,818	35,135	13
Yellow birch	889	3,502	4,391	904	1,316	6,611	254	630	7,495	21
Paper birch	4,475	13,177	17,652	1,284	774	19,710	1,612	1,511	22,833	16
Gray birch	75	805	880	527	798	2,205	376	455	3,036	34
Beech	0	3,739	3,739	1,323	3,426	8,488	442	3,206	12,136	26
White ash	261	362	623	296	131	1,050	0	75	1,125	43
Black ash	76	1,399	1,475	1,817	1,085	4,377	506	508	5,391	31
Aspen	4,214	7,521	11,735	1,455	1,573	14,763	609	1,948	17,320	26
White oaks	0	0	0	0	0	0	0	0	0	-
Red oaks	734	560	1,294	0	0	1,294	0	157	1,451	87
Basswood	0	0	0	0	0	0	0	0	0	-
Elm	0	0	0	0	0	0	0	0	0	-
Other commercial hardwoods	0	0	0	0	0	0	0	0	0	-
Noncommercial hardwoods	-	-	-	854[a]	0	854	75	152	1,081	41
Total hardwoods	15,020	54,555	69,575	13,129	13,739	96,443	4,232	11,498	112,173	8
Total, all species	63,360	155,681	219,041	48,164	27,227	294,432	15,891	41,662	351,985	4.1
Sampling error of total (percent)	10	5	5	9	10	4	13	9	4.1	

[a] Includes 377,000 trees that, except for being noncommercial species, would qualify as growing-stock trees.

Table 20.--Number of trees (5.0+ inches dbh) on timberland by species and tree class, Western Maine, 1982

Species	Tree class								Total	Sampling error of total
	Preferred	Acceptable	All growing stock	Rough cull	Rotten cull	All live	Salvable dead	Nonsalvable dead		
	Thousand trees									Percent
Balsam fir	10,339	78,334	88,673	8,583	4,305	101,561	7,230	16,570	125,361	9
Tamarack	0	213	213	0	0	213	0	0	213	52
White spruce	316	5,387	5,703	213	148	6,064	387	74	6,525	37
Black spruce	445	2,689	3,134	189	75	3,398	270	0	3,668	46
Red spruce	5,318	49,211	54,529	3,555	1,159	59,243	3,293	2,816	65,352	12
Red pine	592	280	872	0	37	909	0	75	984	46
White pine	5,591	18,252	23,843	2,147	481	26,471	363	1,496	28,330	22
Northern white-cedar	37	2,799	2,836	895	1,624	5,355	294	986	6,635	27
Hemlock	2,250	13,820	16,070	2,275	565	18,910	371	40	19,321	25
Other softwoods	0	70	70	80	0	150	0	0	150	71
Total softwoods	24,888	171,055	195,943	17,937	8,394	222,274	12,208	22,057	256,539	7
Sugar maple	2,526	15,318	17,844	2,178	1,495	21,517	66	456	22,039	15
Soft maples	3,061	44,737	47,798	7,997	7,094	62,889	652	2,166	65,707	9
Yellow birch	1,283	22,950	24,233	3,362	2,722	30,317	818	3,087	34,222	10
Paper birch	7,010	39,468	46,478	2,940	3,077	52,495	1,178	3,313	56,986	9
Gray birch	221	3,226	3,447	970	571	4,988	274	1,180	6,442	24
Beech	701	14,742	15,443	4,837	2,574	22,854	116	470	23,440	19
White ash	3,124	4,501	7,625	331	430	8,386	74	178	8,638	24
Black ash	184	681	865	30	69	964	0	0	964	51
Aspen	5,852	15,782	21,634	1,529	1,406	24,569	567	1,097	26,233	18
White oaks	0	428	428	407	21	856	0	0	856	89
Red oaks	1,738	5,483	7,221	790	147	8,158	0	0	8,158	25
Basswood	107	206	313	0	0	313	0	0	313	65
Elm	219	379	598	53	107	758	209	436	1,403	42
Other commercial hardwoods	69	867	936	597	70	1,603	365	70	2,038	38
Noncommercial hardwoods	-	-	-	12,915[a]	2,860	15,775	1,345	3,065	20,185	15
Total hardwoods	26,095	168,768	194,863	38,936	22,643	256,442	5,664	15,518	277,624	4
Total, all species	50,983	339,823	390,806	56,873	31,037	478,716	17,872	37,575	534,163	2.8
Sampling error of total (percent)	9	4	3	7	8	3	11	8	2.8	

[a] Includes 6,519,000 trees that, except for being noncommercial species, would qualify as growing-stock trees.

Table 21.--Average number of trees (5.0+ inches dbh) per acre of timberland by geographic unit and tree class, Maine, 1982

Geographic unit	Tree class								Total
	Preferred	Acceptable	All growing stock	Rough cull	Rotten cull	All live	Salvable dead	Nonsalvable dead	
Aroostook	80	112	192	21	12	225	19	12	256
Capital Region	19	151	170	21	13	204	4	13	221
Casco Bay	28	133	161	30	9	200	3	10	213
Hancock	38	124	162	37	11	210	8	25	243
Piscataquis	68	125	193	15	20	228	16	16	260
Penobscot	38	139	177	39	17	233	14	20	267
Somerset	46	154	200	21	12	233	14	12	259
Washington	42	104	146	32	18	196	11	28	235
Western Maine	23	154	177	26	14	217	8	17	242
All units	48	131	179	25	14	218	13	16	247

Table 22.--Average number of growing-stock trees (5.0+ inches dbh) per acre of timberland by species and geographic unit, Maine, 1982

Species	Aroostook	Capital Region	Casco Bay	Hancock	Penobscot	Piscataquis	Somerset	Washington	Western Maine	Total
Balsam fir	60	19	6	28	28	51	58	22	40	41
Tamarack	1	2	0	1	1	1	0	1	0	1
White spruce	9	2	0	2	3	5	5	6	3	5
Black spruce	12	0	0	4	2	4	5	5	2	5
Red spruce	32	17	3	43	31	62	43	37	25	34
Red pine	0	0	1	0	1	0	1	0	0	0
White pine	1	18	34	5	4	4	4	2	11	7
Northern white-cedar	28	7	1	13	28	13	11	14	1	15
Hemlock	2	12	19	11	20	4	5	13	7	9
Other softwoods	0	0	1	0	0	0	0	0	0	0
Total softwoods	145	77	65	107	118	144	132	100	89	117
Sugar maple	9	5	2	2	6	8	12	2	8	7
Soft maples	8	31	29	20	15	14	15	16	22	17
Yellow birch	5	3	2	4	5	6	9	3	11	6
Paper birch	7	12	9	15	7	7	14	12	21	11
Gray birch	0	2	2	1	2	0	2	1	2	1
Beech	5	4	4	1	9	6	5	2	7	5
White ash	0	4	3	2	2	1	2	0	4	2
Black ash	1	0	0	1	1	2	1	1	0	1
Aspen	12	14	9	9	11	5	8	8	10	9
White oaks	0	0	2	0	0	0	0	0	0	0
Red oaks	0	11	20	0	0	0	0	1	3	3
Basswood	0	0	0	0	0	0	0	0	0	0
Elm	0	0	0	0	1	0	0	0	0	0
Other hardwoods	0	3	1	0	0	0	0	0	0	0
Total hardwoods	47	89	83	55	59	49	68	46	88	62
Total, all species	192	166	148	162	177	193	200	146	177	179

Table 23.--Average diameter at breast height of growing-stock trees (5.0+ inches dbh) on timberland by species and geographic unit, Maine, 1982

Species	Aroostook	Capital Region	Casco Bay	Hancock	Penobscot	Piscataquis	Somerset	Washington	Western Maine	Total
Balsam fir	7.4	6.7	7.2	6.6	6.9	7.4	7.5	6.9	7.6	7.3
Tamarack	9.3	9.2	8.2	9.1	7.7	7.3	8.0	8.7	8.6	8.5
White spruce	8.0	7.9	6.6	7.4	7.6	7.8	7.3	7.2	8.1	7.7
Black spruce	6.9	7.3	6.2	7.1	7.0	8.0	6.9	6.6	8.4	7.1
Red spruce	8.4	8.2	8.4	8.5	8.3	8.0	8.0	8.1	8.0	8.2
Red pine	.0	12.7	9.6	11.8	10.8	.0	9.0	10.9	10.5	10.2
White pine	10.6	10.1	10.1	10.2	10.9	10.7	9.9	11.5	9.5	10.1
Northern white-cedar	8.6	7.4	7.2	8.3	7.8	9.8	9.5	8.0	8.7	8.6
Hemlock	9.7	9.2	9.6	9.1	8.6	8.6	8.8	8.7	8.7	9.0
Other softwoods	8.0	.0	10.0	.0	.0	.0	.0	.0	6.0	9.6
Softwoods	7.9	8.4	9.5	8.1	8.0	8.0	7.9	7.9	8.1	8.1
Sugar maple	9.5	7.7	7.9	8.4	9.1	10.2	9.6	8.6	8.6	9.3
Soft maples	7.9	7.8	7.6	7.7	8.1	8.3	8.2	7.9	7.9	8.0
Yellow birch	9.4	8.1	7.6	7.9	8.3	9.8	9.5	8.1	9.9	9.3
Paper birch	7.3	7.5	7.4	7.3	8.0	7.7	7.6	7.4	7.9	7.6
Gray birch	6.0	6.5	6.7	6.4	6.4	6.7	6.6	6.5	7.0	6.6
Beech	9.3	7.6	7.8	7.4	7.6	8.3	8.1	7.8	8.0	8.2
White ash	8.9	8.1	7.3	8.5	8.6	8.6	8.5	8.8	8.6	8.4
Black ash	8.6	6.4	6.3	7.5	8.1	7.8	7.7	8.1	7.3	8.0
Aspen	8.5	7.7	7.6	8.1	9.0	9.5	8.2	8.2	8.0	8.3
White oaks	.0	7.0	8.1	.0	6.8	.0	.0	.0	6.3	7.6
Red oaks	12.9	8.8	8.3	9.9	11.1	19.4	8.8	8.8	8.2	8.5
Basswood	6.0	8.8	7.7	.0	10.2	9.9	12.5	.0	9.3	9.6
Elm	8.9	7.8	7.5	.0	13.2	10.0	8.2	.0	7.6	9.5
Other hardwoods	12.0	7.7	7.5	.0	7.8	12.0	7.0	.0	6.9	7.5
Hardwoods	8.6	7.8	7.7	7.7	8.3	8.8	8.4	7.9	8.3	8.3
All species	8.1	8.1	8.5	7.9	8.1	8.2	8.1	7.9	8.2	8.1

Powell, Douglas S. Forest composition of Maine: An analysis using number of trees. Resour. Bull. NE-85. Broomall, PA: U.S. Deparmtnet of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1985. 40 p.

Number-of-trees data compiled by the USDA Forest Service from three periodic statewide inventories of Maine's forest resources are used to analyze the composition of the state's timberland in terms of species, tree class, and size. Conditions are compared and contrasted for periods from 1959 to 1974 to 1982 across different regions and counties of the state. Twenty-three statistical tables containing 1982 estimates of number of trees, trees per acre, and average diameter are presented.

ODC 905.2--014(741)

Keywords: Species, tree class, size, inventory, statistics, counties, comparison, change.

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United States
Department of
Agriculture

Forest Service

Northeastern
Forest
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Resource
Bulletin NE-86

1985

Aboveground Tree Biomass Statistics for Maine: 1982

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Manuscript received for publication
18 April 1985

Abstract

Traditional measures of volume inadequately describe the total aboveground wood resource. The 1980-82 inventory of Maine included estimates of aboveground tree biomass on timberland. There are nearly 1,504.4 million green tons of wood and bark in all trees abov the ground level, or 88.2 green tons per acre f timberland. Most of the biomass is in growin stock, but 49 percent is in the tops and branches of trees, cull trees (including noncommercial tree species), salvable dead trees, saplings, and stumps above the ground.

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reword

The USDA Forest Service has recently completed a third inventory of Maine's forest resources. The results from the two previous inventories conducted in Maine were reported by Ferguson and Longwood (1960) and Ferguson and Kingsley (1972). Statistics on land areas, timber volume, and numbers of trees from the third inventory conducted in 1980-82 also have been published (Powell and Dickson 1984).

This report presents forest resource data including biomass statistics based on the third inventory. The estimates of timberland area and timber volume in this report are a summary of information collected; they are based on a partial remeasurement of field plots established during earlier inventories and on a measurement of 2,275 new field plots. The estimates of numbers of trees and aboveground tree biomass are based only on the new field plot measurements.

Data were collected, processed, and analyzed by the Forest Inventory and Analysis staff. The Maine Bureau of Forestry, Department of Conservation, provided supplemental funding to intensify the reinventory and assisted significantly with the planning, data collection, and analysis of the inventory. For additional publications or more resource data, contact: Forest Inventory and Analysis Project, USDA Forest Service, 370 Reed Road, Broomall, PA 19008 (phone: 215-461-3037), or Director, Maine Bureau of Forestry, State House Station #22, Augusta, ME 04333 (phone: 207-289-2791).

Highlights

* There are approximately 47,677.4 million board feet of sawtimber,[1] approximately 22,796.1 million cubic feet of growing stock, and approximately 1,504.4 million green tons of aboveground tree biomass in Maine.

* Maine timberlands average 88.2 green tons of aboveground tree biomass per acre, and range from a low of 72.3 green tons per acre in Sagadahoc County to a high of 95.2 green tons per acre in York County.

* The growing-stock portion accounts for 51 percent of the aboveground tree biomass, the tops and branches of growing-stock trees for 20 percent, saplings for 15 percent, cull trees for 11 percent, salvable dead trees for 2 percent, and stumps above the ground for 1 percent.

* Sawtimber stands contain 880.1 million green tons of aboveground tree biomass, or 103.3 green tons per acre of timberland.

* The spruce/fir forest-type group contains the largest amount of aboveground tree biomass (674.3 million green tons), but the white/red pine forest-type group is more concentrated (101.2 green tons per acre of timberland).

* In terms of aboveground tree biomass, balsam fir is the leading species with 243.9 million green tons, followed by red spruce and soft maples with 240.7 and 147.3 million green tons, respectively. There are more soft maple trees than red spruce trees, but the red maple trees contribute less to the total biomass.

* Noncommercial hardwoods account for 14 percent of all hardwood trees in Maine, but account for only 3 percent of the hardwood aboveground tree biomass resource.

* Cull and salvable dead trees average 12.3 green tons of aboveground tree biomass per acre of timberland, and range from a low of 7.1 green tons per acre in Androscoggin County to a high of 15.5 green tons per acre in Penobscot County.

* The spruce/fir forest-type group contains the highest amount of cull and salvable dead tree biomass in Maine--85.3 million green tons.

* Softwoods make up 56 percent of the aboveground tree biomass when all trees are considered, but hardwoods make up 58 percent of the aboveground biomass when only the cull and salvable dead trees are considered.

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[1] This term and others are defined in the Appendix.

Background

Forest resource statistics are usually provided to reflect timber production on forest land. For that reason, sawtimber volumes (expressed as board feet) and growing-stock volumes (expressed as cubic feet) of specific trees are estimated in USDA Forest Service inventories. Sawtimber is the main stem of trees at least 9.0 inches dbh (diameter at breast height) for softwoods and at least 11.0 inches dbh for hardwoods, between a 1-foot stump height and a 7.0-inch top dob (diameter outside bark) for softwoods and 9.0-inch top dob for hardwoods (Fig. 1). Growing stock is the main stem of trees at least 5.0 inches dbh, between a 1-foot stump height and a 4.0-inch top dob.

While timber production is the primary use of forest land, data users are also interested in how the forest resource can be used for energy, fiber-based products, wildlife, and recreation. Since estimates of the merchantable stem do not describe the resource in terms useful for multi-resource purposes, biomass estimates have been incorporated into the standard USDA Forest Service inventory procedure. For the purpose of this report, biomass is the green weight of trees at least 1.0 inch dbh above the ground (wood and bark). Foliage, rotten material, and the stump-root system below the ground are excluded (Fig. 1).

Weight equations have been developed for the important tree species in Maine (Young et al. 1980). Those equations were substituted for t conventional volume equations used during the compilation of statewide statistics to provide an estimate of biomass in all trees above the stump. However, these equations do not allow for the estimation of specific components of trees such as stump biomass (between the groun level and a 1-foot stump height) and merchantable stem biomass (between a 1-foot stump height and a 4-inch top dob); separate techniques were used to derive these estimates

Stump biomass was developed through a two-step process. First, the volume in stumps was estimated from regression equations using diameter at breast height as the dependent variable (Raile 1982). Second, the volumes we converted to weight using species-specific weight/volume ratios (Markwardt 1930).

The weight of the merchantable stem was calculated by applying weight/volume ratios t estimates of volume. Timber volume was estimated from new regression equations for bo sawtimber and growing stock (Scott 1979, 1981) The difference between above-stump biomass derived from the weight regression equations and the independent estimate of merchantable stem biomass resulted in the biomass in the t and branches.

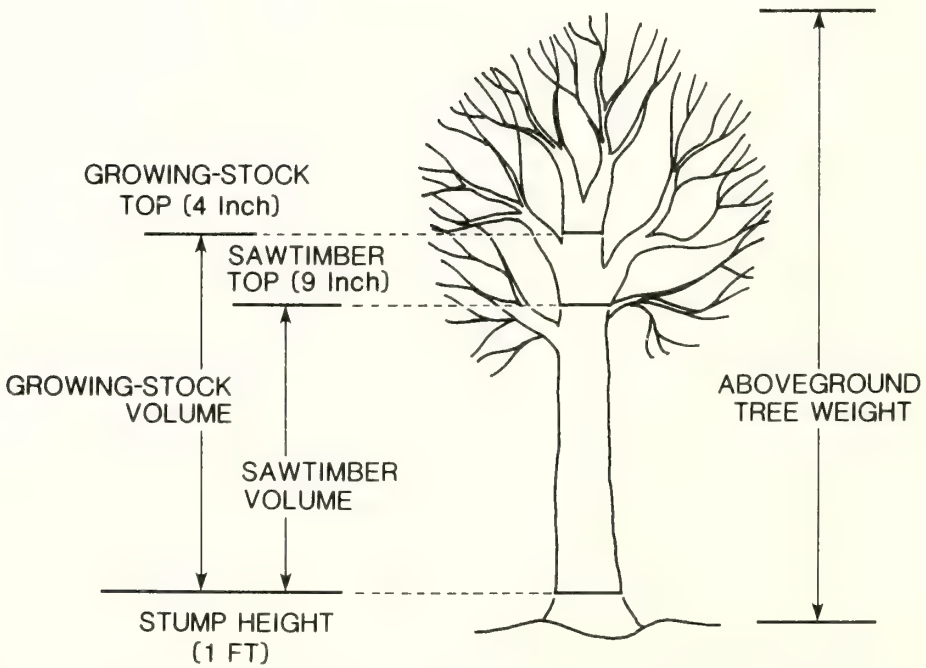

Figure 1.--Volume and weight relationships of hardwood aboveground tree biomass components.

timates of timberland area, timber volume, mbers of trees, and aboveground tree biomass ve been summarized in the tables. The atistics are presented by forest-type oup, species or species group, and diameter ass; all estimates are provided at the state d county level.

liability of the Estimates

o important sources of error arise from the timates provided in this report: (1) the ror associated with estimation from sample ots, and (2) the error associated with mbining independent estimates. Some of the rors of the estimates are provided in the bles, and are shown as a percentage of the tal.

rors associated with estimation from sample ots are used as follows: the estimate of oveground biomass in all trees on Maine's mberlands is 1,504.4 million green tons, but is estimate has an associated sampling error 1.0 percent, or 15.0 million green tons. is means that if the survey were repeated, ere is a 66 percent probability (2 to 1) that e resulting estimate of aboveground tree omass would be 1,504.4 ± 15.0 million green ns, or between 1,489.4 and 1,519.4 million een tons. There is a 95 percent probability 9 to 1) that the estimate would be 1,504.4 ± .0 million green tons.

ate-level statistics are the most reliable cause they have the smallest sampling errors. stated previously, the estimate of oveground tree biomass in all trees on Maine's mberlands has a sampling error of 1.0 percent, 1,504.4 ± 15.0 million green tons. However, e estimate of aboveground tree biomass of all ees in Androscoggin County has a sampling ror of 6.3 percent, or 18.8 ± 1.2 million een tons. Therefore, county-level estimates e often considerably less reliable than ate-level estimates. In general, as the mple size used to derive an estimate decreases relation to the total, the sampling error creases.

ne of the estimates presented in the tables ve errors that are greater than 25 percent d may not be reliable. An estimate with an ror of 50 percent or more would not be gnificantly different from zero, and an timate with an error between 25 and 50 percent uld be suspect. Consequently, those estimates at have errors exceeding 25 percent should be ed with caution.

e second important source of error in this port occurs when two independent estimates are ed to derive a third. The biomass in tops and anches has been estimated in this manner. The dependent estimate of the merchantable stem omass was subtracted from the estimate of ove-stump biomass to yield an estimate of e biomass in tops and branches. Estimates derived in this manner should also be used with caution.

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Acknowledgments

This inventory was directed by Joseph E. Barnard, Project Leader of the Forest Inventory and Analysis unit. Charlest T. Scott, Douglas S. Powell, and Robert T. Brooks were responsible for the design of the inventory and sample selection. Thomas W. Birch was responsible for developing consistent estimates of area. Kenneth Hendren and James Rea provided assistance on behalf of the Maine Bureau of Forestry.

John R. Peters supervised the aerial-photo interpretation and data collection by the field crews. He was assisted by David J. Alerich, Thomas B. Hartman, Joseph A. Reddan, Karen J. Sykes, Edward H. Uebler, and Richard H. Widmann.

The field crews included: Mark Bilyk, Robert W. Bolich, Sheryl D. Brown, Kenneth Buten, James D. Brennan, Gary M. Capella, Beth A. Coulter, Craig Coutros, Thomas J. Diem, Michael H. Dudek, Dolores M. Eckert, Ellen M. Eshchuk, Sandra A. Fortin, George A. Galasso, Richard R. Gerard, Kenneth W. Getsch, Susan M. Grenier, Michael F. Hart, John R. Houghton, Peter C. Johnson, Thomas R. Kass, Marianne C. Kenney, Wayne R. Kettlewood, Alan E. Kinley, James L. Knapp, IV, Patricia J. Lawler, Anita J. Lazarus, Barbara A. Levesque, Regina C. McCombs, Donald L. McFarland, Gerard E. Milne, Jr., Neil W. Monteith, Kenneth F. Murin, Worthern D. Muzzey, Jr., Lisa J. Myers, Karin E. Naslund, Joseph A. Noel, Janet S. Palentchar, Fred H. Perkuhn, James R. Pfirman, Kip V. Powers, Beth A. Quinn, Richard R. Reimers, Loretta K. Reynolds, Lori B. Reynolds, John P. Rovetto, Remo B. Sadak, Kim M. Santos, Colleen M. Scarrow, Glenn P. Schifferdecker, Peter Slater, Richard L. Slike, Susan L. Slocum, Gail L. Smith, Gary R. Smith, Michael J. Valent, Roger C. Van Wyck, Louis V. Verchot, John H. Vigliotti, Nancy Gail Voorhis, Donald R. Wendt, Thomas G. White, Bruce Wilkins, and Karl E. Wilkins.

David R. Dickson supervised the data processing tasks. Margaret Little and Carol McAfee performed a variety of data editing and compilation tasks. Marie Pennestri typed the text for this report. Carmela M. Hyland was responsible for administrative and secretarial services.

Special thanks to Nancy M. Veronesi for her help in developing the data processing techniques required.

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The tables are divided into three sections: (1) net volume and aboveground biomass of all trees, (2) net aboveground biomass of all live trees (excludes salvable dead trees), and (3) net aboveground biomass of cull and salvable dead trees.

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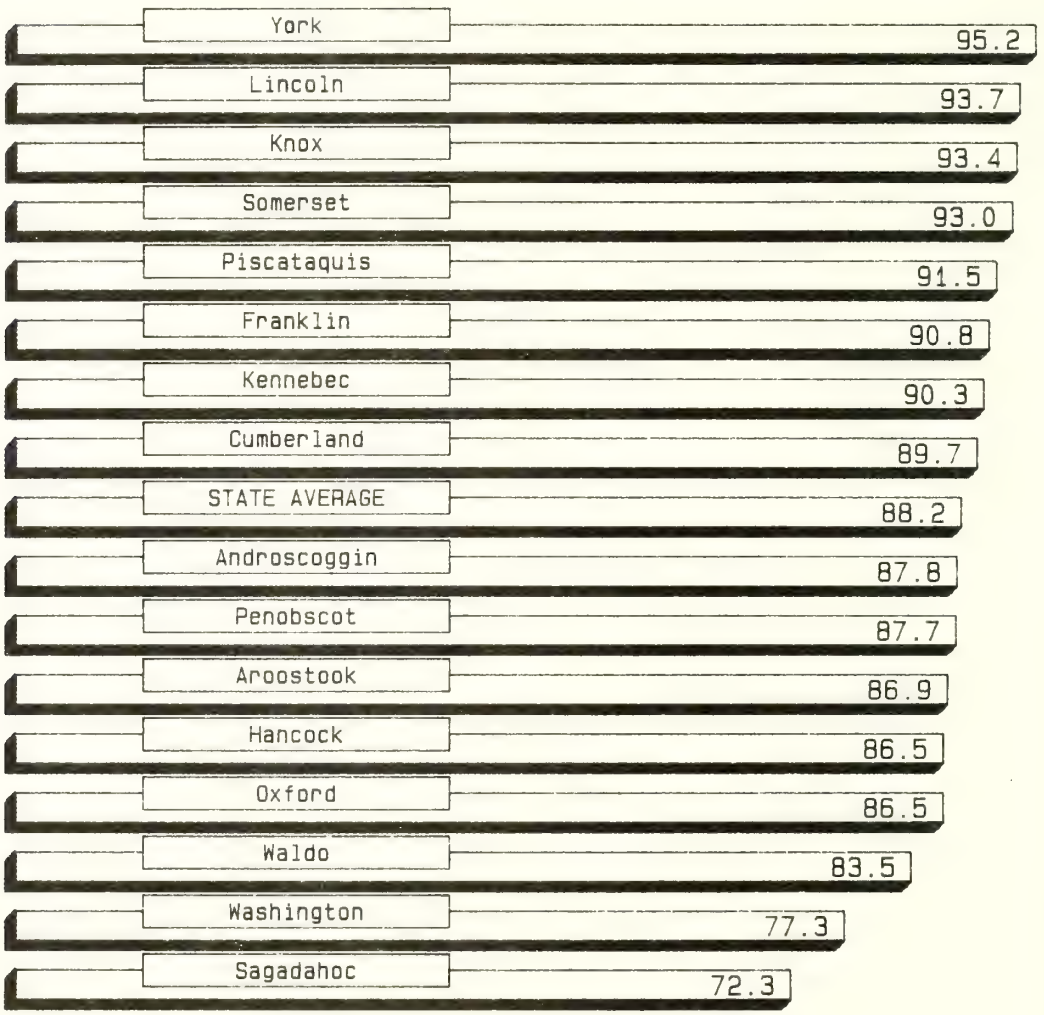

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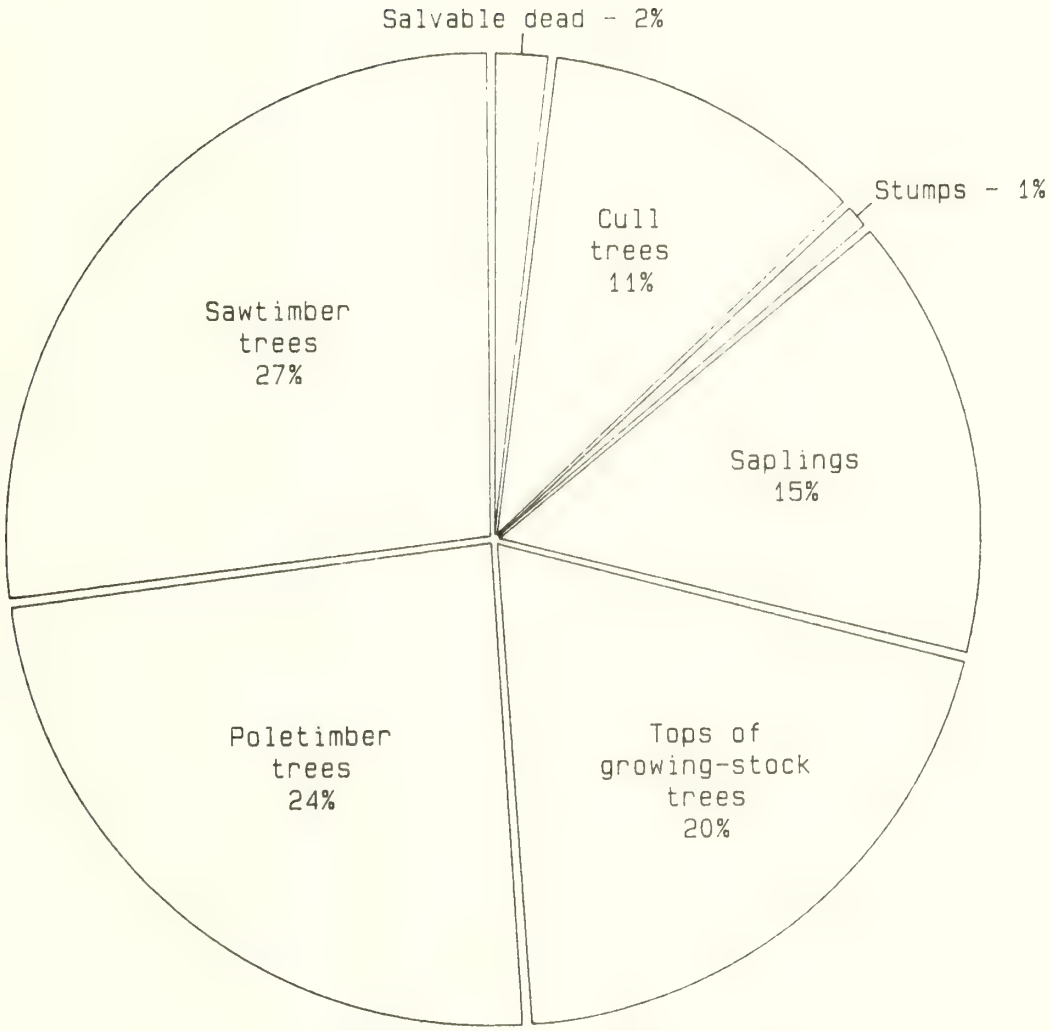


Distribution of Biomass by Source of Material

Table 1.--Net volume of sawtimber, growing stock and aboveground tree biomass of all trees on timberland by county and species group, Maine, 1982

County	Species group		All species
	Softwoods	Hardwoods	
	SAWTIMBER[a]		
	Million board feet		
Androscoggin	504.6	141.6	646.2
Aroostook	7,981.7	3,174.6	11,156.3
Cumberland	1,085.3	241.6	1,326.9
Franklin	1,540.1	1,130.0	2,670.1
Hancock	1,543.9	277.8	1,821.7
Kennebec	786.8	323.7	1,110.5
Knox	325.9	161.6	487.5
Lincoln	566.5	170.6	737.1
Oxford	1,898.9	1,196.3	3,095.2
Penobscot	3,145.2	1,446.8	4,592.0
Piscataquis	5,592.4	2,196.1	7,788.5
Sagadahoc	276.8	87.8	364.6
Somerset	4,396.3	2,419.9	6,816.2
Waldo	398.5	229.5	628.0
Washington	1,956.1	651.5	2,607.6
York	1,478.6	350.4	1,829.0
All counties	33,477.6	14,199.8	47,677.4
	GROWING STOCK[b]		
	Million cubic feet		
Androscoggin	149.5	137.2	286.7
Aroostook	3,855.4	1,493.6	5,349.0
Cumberland	334.6	210.6	545.2
Franklin	717.0	725.9	1,442.9
Hancock	661.1	263.2	924.3
Kennebec	240.3	269.6	509.9
Knox	126.2	93.6	219.8
Lincoln	178.7	104.0	282.7
Oxford	817.1	768.3	1,585.4
Penobscot	1,418.5	787.2	2,205.7
Piscataquis	2,468.8	982.1	3,450.9
Sagadahoc	77.9	68.6	146.5
Somerset	2,175.2	1,246.0	3,421.2
Waldo	188.9	208.8	397.7
Washington	944.8	414.0	1,358.8
York	404.3	265.1	669.4
All counties	14,758.3	8,037.8	22,796.1

Table 1.--Continued

County	Species group		All species
	Softwoods	Hardwoods	
	TREE BIOMASS[c]		
	Thousand green tons		
Androscoggin	8,712.8	10,095.6	18,808.4
Aroostook	201,567.7	125,946.9	327,514.6
Cumberland	19,774.8	16,702.7	36,477.5
Franklin	39,414.8	52,664.0	92,078.8
Hancock	40,541.7	26,627.5	67,169.2
Kennebec	15,306.4	20,879.3	36,185.7
Knox	7,828.8	7,617.2	15,446.0
Lincoln	11,524.4	9,478.4	21,002.8
Oxford	44,236.0	58,768.5	103,004.5
Penobscot	89,977.0	74,316.0	164,293.0
Piscataquis	130,432.6	74,340.8	204,773.4
Sagadahoc	4,629.0	4,390.3	9,019.3
Somerset	117,385.1	99,725.6	217,110.7
Waldo	12,820.0	17,406.1	30,226.1
Washington	67,671.5	44,691.8	112,363.3
York	24,698.0	24,210.5	48,908.5
All counties	836,520.6	667,861.2	1,504,381.8

[a]Net volume in board feet, by International 1/4-inch rule, of live trees of commercial species at least 9.0 inches dbh (diameter breast height) for softwoods or 11.0 inches dbh for hardwoods, between a 1-foot stump height and a minimum sawlog top of 7.0 inches dob (diameter outside bark) for softwoods or 9.0 inches dob for hardwoods, or until the point on the main stem above which a sawlog cannot be produced.
[b]Net volume, in cubic feet, of live trees of commercial species at least 5.0 inches dbh, between a 1-foot stump height and a minimum top of 4.0 inches dob, or to the point where the main stem breaks into limbs.
[c]Net biomass, in green tons, of all trees (commercial species, noncommercial species, cull trees, and salvable dead trees) at least 1.0 inch dbh, above the ground level (excluding foliage).

Table 2.--Area of timberland, net aboveground tree biomass of all trees on timberland, and net aboveground tree biomass per acre of timberland by county, Maine, 1982

County	Timberland area	Total aboveground tree biomass	Total aboveground tree biomass per unit area
	Thousand acres	Thousand green tons	Green tons per acre
Androscoggin	214.1	18,808.4	87.8
Aroostook	3,768.4	327,514.6	86.9
Cumberland	406.5	36,477.5	89.7
Franklin	1,014.2	92,078.8	90.8
Hancock	776.3	67,169.2	86.5
Kennebec	400.8	36,185.7	90.3
Knox	165.4	15,446.0	93.4
Lincoln	224.1	21,002.8	93.7
Oxford	1,190.6	103,004.5	86.5
Penobscot	1,872.7	164,293.0	87.7
Piscataquis	2,238.1	204,773.4	91.5
Sagadahoc	124.7	9,019.3	72.3
Somerset	2,334.5	217,110.7	93.0
Waldo	362.1	30,226.1	83.5
Washington	1,454.2	112,363.3	77.3
York	513.5	48,908.5	95.2
All counties	17,060.2	1,504,381.8	88.2

Table 3.--Net aboveground tree biomass of all trees on timberland by class of material and species group, Maine, 1982

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	232,910.7	110,684.7	343,595.4	2
Upper stem	32,706.2	27,827.6	60,533.8	2
Total	265,616.9	138,512.3	404,129.2	2
Poletimber trees	181,544.4	174,834.2	356,378.6	1
All growing stock	447,161.3	313,346.5	760,507.8	1
Rough cull trees[b]	32,680.4	45,855.7	78,536.1	3
Rotten cull trees[b]	12,953.8	32,640.2	45,594.0	4
Salvable dead trees[c]	22,957.2	10,383.9	33,341.1	4
Saplings[d]	117,959.2	106,186.1	224,145.3	3
Stumps[e]	11,228.5	9,353.4	20,581.9	1
Tops - growing stock	173,543.1	120,135.3	293,678.4	1
Tops - rough and rotten	18,037.1	29,960.1	47,997.2	2
All nongrowing stock	389,359.3	354,514.7	743,874.0	1
All classes	836,520.6	667,861.2	1,504,381.8	1.0
Sampling error (percent)	2	2	1.0	

[a] Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b] Main stem portion of trees 5.0 inches dbh and larger between a 1-foot stump height and a 4-inch top dob.

[c] Includes entire tree above a 1-foot stump height.

[d] Includes entire tree above the ground.

[e] Of all trees 5.0 inches dbh and larger.

Table 4.--Net aboveground tree biomass of all trees on timberland by class of material and species group, Androscoggin County, Maine, 1982

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	3,601.5	969.3	4,570.8	14
Upper stem	421.9	255.9	677.8	12
Total	4,023.4	1,225.2	5,248.6	14
Poletimber trees	1,132.8	3,458.1	4,590.9	9
All growing stock	5,156.2	4,683.3	9,839.5	8
Rough cull trees[b]	195.9*	493.0	688.9	17
Rotten cull trees[b]	32.2*	240.9*	273.1*	35
Salvable dead trees[c]	87.9*	66.3*	154.2*	29
Saplings[d]	1,276.6*	2,276.5	3,553.1	20
Stumps[e]	90.1	119.8	209.9	8
Tops - growing stock	1,785.0	1,924.1	3,709.1	7
Tops - rough and rotten	88.9	291.7	380.6	16
All nongrowing stock	3,556.6	5,412.3	8,968.9	8
All classes	8,712.8	10,095.6	18,808.4	6.3
Sampling error (percent)	13	10	6.3	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.
[b]Main stem portion of trees 5.0 inches dbh and larger between a 1-foot stump height and a 4-inch top dob.
[c]Includes entire tree above a 1-foot stump height.
[d]Includes entire tree above the ground.
[e]Of all trees 5.0 inches dbh and larger.

Table 5.--Net aboveground tree biomass of all trees on timberland by class of material and species group, Aroostook County, Maine, 1982

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	51,584.3	25,018.7	76,603.0	4
Upper stem	7,646.9	6,018.9	13,665.8	3
Total	59,231.2	31,037.6	90,268.8	4
Poletimber trees	49,368.3	28,191.1	77,559.4	3
All growing stock	108,599.5	59,228.7	167,828.2	2
Rough cull trees[b]	5,967.0	10,155.0	16,122.0	6
Rotten cull trees[b]	3,060.2	6,661.7	9,721.9	8
Salvable dead trees[c]	7,871.2	2,823.3	10,694.5	7
Saplings[d]	26,182.9	17,087.1	43,270.0	6
Stumps[e]	2,970.6	1,812.5	4,783.1	2
Tops - growing stock	43,318.8	22,034.9	65,353.7	2
Tops - rough and rotten	3,597.5	6,143.7	9,741.2	5
All nongrowing stock	92,968.2	66,718.2	159,686.4	2
All classes	201,567.7	125,946.9	327,514.6	1.9
Sampling error (percent)	4	5	1.9	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Main stem portion of trees 5.0 inches dbh and larger between a 1-foot stump height and a 4-inch top dob.

[c]Includes entire tree above a 1-foot stump height.

[d]Includes entire tree above the ground.

[e]Of all trees 5.0 inches dbh and larger.

Table 6.--Net aboveground tree biomass of all trees on timberland by class of material and species group, Cumberland County, Maine, 1982

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	7,850.3	1,758.5	9,608.8	8
Upper stem	999.8	500.0	1,499.8	7
Total	8,850.1	2,258.5	11,108.6	8
Poletimber trees	2,276.7	5,037.3	7,314.0	7
All growing stock	11,126.8	7,295.8	18,422.6	6
Rough cull trees[b]	1,890.5	1,096.2	2,986.7	15
Rotten cull trees[b]	88.8*	412.8	501.6	20
Salvable dead trees[c]	87.8*	69.7*	157.5	24
Saplings[d]	1,761.5	4,033.8	5,795.3	10
Stumps[e]	215.5	218.8	434.3	6
Tops - growing stock	3,923.9	2,964.7	6,888.6	5
Tops - rough and rotten	680.0	610.9	1,290.9	11
All nongrowing stock	8,648.0	9,406.9	18,054.9	5
All classes	19,774.8	16,702.7	36,477.5	4.6
Sampling error (percent)	8	7	4.6	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.
[b]Main stem portion of trees 5.0 inches dbh and larger between a 1-foot stump height and a 4-inch top dob.
[c]Includes entire tree above a 1-foot stump height.
[d]Includes entire tree above the ground.
[e]Of all trees 5.0 inches dbh and larger.

Table 7.--Net aboveground tree biomass of all trees on timberland by class of material and species group, Franklin County, Maine, 1982

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	10,521.9	8,762.1	19,284.0	9
Upper stem	1,548.5	2,312.0	3,860.5	7
Total	12,070.4	11,074.1	23,144.5	8
Poletimber trees	8,964.6	16,253.2	25,217.8	5
All growing stock	21,035.0	27,327.3	48,362.3	4
Rough cull trees[b]	1,344.4	2,373.3	3,717.7	12
Rotten cull trees[b]	560.1	2,422.7	2,982.8	12
Salvable dead trees[c]	1,679.8	603.2*	2,283.0	14
Saplings[d]	5,143.6	6,720.7	11,864.3	12
Stumps[e]	522.5	747.4	1,269.9	4
Tops - growing stock	8,313.4	10,569.2	18,882.6	4
Tops - rough and rotten	816.0	1,900.2	2,716.2	9
All nongrowing stock	18,379.8	25,336.7	43,716.5	4
All classes	39,414.8	52,664.0	92,078.8	3.6
Sampling error (percent)	9	6	3.6	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Main stem portion of trees 5.0 inches dbh and larger between a 1-foot stump height and a 4-inch top dob.

[c]Includes entire tree above a 1-foot stump height.

[d]Includes entire tree above the ground.

[e]Of all trees 5.0 inches dbh and larger.

Table 8.--Net aboveground tree biomass of all trees on timberland by class of material and species group, Hancock County, Maine, 1982

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	11,363.4	2,369.7	13,733.1	11
Upper stem	1,547.0	639.1	2,186.1	10
Total	12,910.4	3,008.8	15,919.2	11
Poletimber trees	7,467.3	7,239.4	14,706.7	7
All growing stock	20,377.7	10,248.2	30,625.9	7
Rough cull trees[b]	2,053.4	3,042.5	5,095.9	11
Rotten cull trees[b]	296.2	1,358.1	1,654.3	16
Salvable dead trees[c]	471.5	360.8*	832.3	16
Saplings[d]	8,203.4	5,389.1	13,592.5	11
Stumps[e]	480.0	352.7	832.7	6
Tops - growing stock	7,702.8	4,135.5	11,838.3	6
Tops - rough and rotten	956.7	1,740.6	2,697.3	10
All nongrowing stock	20,164.0	16,379.3	36,543.3	5
All classes	40,541.7	26,627.5	67,169.2	5.1
Sampling error (percent)	8	10	5.1	

[a] Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b] Main stem portion of trees 5.0 inches dbh and larger between a 1-foot stump height and a 4-inch top dob.

[c] Includes entire tree above a 1-foot stump height.

[d] Includes entire tree above the ground.

[e] Of all trees 5.0 inches dbh and larger.

Table 9.--Net aboveground tree biomass of all trees on timberland by class of material and species group, Kennebec County, Maine, 1982

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	6,497.0	2,422.5	8,919.5	11
Upper stem	753.5	654.2	1,407.7	9
Total	7,250.5	3,076.7	10,327.2	11
Poletimber trees	1,923.1	7,111.4	9,034.5	6
All growing stock	9,173.6	10,188.1	19,361.7	6
Rough cull trees[b]	661.7*	874.9	1,536.6	15
Rotten cull trees[b]	206.8	528.8	735.6	15
Salvable dead trees[c]	111.1*	88.8*	199.9	22
Saplings[d]	1,543.9	4,276.1	5,820.0	10
Stumps[e]	173.5	261.3	434.8	5
Tops - growing stock	3,110.7	4,089.7	7,200.4	5
Tops - rough and rotten	325.1	571.6	896.7	12
All nongrowing stock	6,132.8	10,691.2	16,824.0	5
All classes	15,306.4	20,879.3	36,185.7	4.5
Sampling error (percent)	9	6	4.5	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Main stem portion of trees 5.0 inches dbh and larger between a 1-foot stump height and a 4-inch top dob.

[c]Includes entire tree above a 1-foot stump height.

[d]Includes entire tree above the ground.

[e]Of all trees 5.0 inches dbh and larger.

Table 10.--Net aboveground tree biomass of all trees on timberland by class of material and species group, Knox County, Maine, 1982

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	2,338.5	1,321.0	3,659.5	14
Upper stem	312.4	326.5	638.9	13
Total	2,650.9	1,647.5	4,298.4	14
Poletimber trees	1,574.0	1,999.1	3,573.1	10
All growing stock	4,224.9	3,646.6	7,871.5	9
Rough cull trees[b]	301.0*	440.7	741.7	20
Rotten cull trees[b]	148.2*	327.8	476.0	18
Salvable dead trees[c]	28.6**	69.6**	98.2	41
Saplings[d]	1,277.7*	1,327.0	2,604.7	18
Stumps[e]	88.6	99.2	187.8	8
Tops - growing stock	1,605.3	1,403.2	3,008.5	9
Tops - rough and rotten	154.5	303.1	457.6	13
All nongrowing stock	3,603.9	3,970.6	7,574.5	7
All classes	7,828.8	7,617.2	15,446.0	7.2
Sampling error (percent)	12	13	7.2	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.
[b]Main stem portion of trees 5.0 inches dbh and larger between a 1-foot stump height and a 4-inch top dob.
[c]Includes entire tree above a 1-foot stump height.
[d]Includes entire tree above the ground.
[e]Of all trees 5.0 inches dbh and larger.

Table 11.--Net aboveground tree biomass of all trees on timberland by class of material and species group, Lincoln County, Maine, 1982

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	4,576.8	1,422.6	5,999.4	14.1
Upper stem	550.7	372.5	923.2	12.2
Total	5,127.5	1,795.1	6,922.6	13.7
Poletimber trees	1,594.7	2,308.8	3,903.5	8.5
All growing stock	6,722.2	4,103.9	10,826.1	9.4
Rough cull trees[b]	446.9	639.5	1,086.4	16.4
Rotten cull trees[b]	145.4	327.4	472.8	17.4
Salvable dead trees[c]	65.5	126.7	192.2	44.7
Saplings[d]	1,484.1	2,189.5	3,673.6	12.6
Stumps[e]	117.2	125.0	242.2	7.5
Tops - growing stock	2,343.4	1,590.5	3,933.9	8.4
Tops - rough and rotten	199.7	375.9	575.6	12.6
All nongrowing stock	4,802.2	5,374.5	10,176.7	6.0
All classes	11,524.4	9,478.4	21,002.8	6.5
Sampling error (percent)	12	9	6.5	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Main stem portion of trees 5.0 inches dbh and larger between a 1-foot stump height and a 4-inch top dob.

[c]Includes entire tree above a 1-foot stump height.

[d]Includes entire tree above the ground.

[e]Of all trees 5.0 inches dbh and larger.

Table 12.--Net aboveground tree biomass of all trees on timberland by class of material and species group, Oxford County, Maine, 1982

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	13,971.7	9,326.5	23,298.2	8
Upper stem	1,942.0	2,363.2	4,305.2	7
Total	15,913.7	11,689.7	27,603.4	7
Poletimber trees	9,689.5	17,535.4	27,224.9	5
All growing stock	25,603.2	29,225.1	54,828.3	5
Rough cull trees[b]	1,464.0	3,625.9	5,089.9	10
Rotten cull trees[b]	464.7	2,293.0	2,757.7	14
Salvable dead trees[c]	1,058.6*	463.0	1,521.6	21
Saplings[d]	4,515.2	8,724.8	13,240.0	12
Stumps[e]	552.0	845.3	1,397.3	4
Tops - growing stock	9,846.4	11,294.9	21,141.3	4
Tops - rough and rotten	731.9	2,296.5	3,028.4	8
All nongrowing stock	18,632.8	29,543.4	48,176.2	4
All classes	44,236.0	58,768.5	103,004.5	3.7
Sampling error (percent)	9	7	3.7	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.
[b]Main stem portion of trees 5.0 inches dbh and larger between a 1-foot stump height and a 4-inch top dob.
[c]Includes entire tree above a 1-foot stump height.
[d]Includes entire tree above the ground.
[e]Of all trees 5.0 inches dbh and larger.

Table 13.--Net aboveground tree biomass of all trees on timberland by class of material and species group, Penobscot County, Maine, 1982

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	24,298.1	11,099.0	35,397.1	6
Upper stem	3,428.7	2,890.4	6,319.1	6
Total	27,726.8	13,989.4	41,716.2	6
Poletimber trees	18,976.7	18,779.1	37,755.8	5
All growing stock	46,703.5	32,768.5	79,472.0	4
Rough cull trees[b]	4,978.2	7,367.3	12,345.5	8
Rotten cull trees[b]	1,485.0	3,950.4	5,435.4	10
Salvable dead trees[c]	2,383.5	1,109.4	3,492.9	10
Saplings[d]	12,422.2	10,962.4	23,384.6	8
Stumps[e]	1,291.1	1,051.5	2,342.6	3
Tops - growing stock	18,125.3	12,592.8	30,718.1	4
Tops - rough and rotten	2,588.2	4,513.7	7,101.9	6
All nongrowing stock	43,273.5	41,547.5	84,821.0	3
All classes	89,977.0	74,316.0	164,293.0	3.1
Sampling error (percent)	5	6	3.1	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Main stem portion of trees 5.0 inches dbh and larger between a 1-foot stump height and a 4-inch top dob.

[c]Includes entire tree above a 1-foot stump height.

[d]Includes entire tree above the ground.

[e]Of all trees 5.0 inches dbh and larger.

Table 14.--Net aboveground tree biomass of all trees on timberland by class of material and species group, Piscataquis County, Maine, 1982

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	36,005.4	16,331.2	52,336.6	5
Upper stem	5,052.0	3,984.4	9,036.4	5
Total	41,057.4	20,315.6	61,373.0	5
Poletimber trees	30,402.4	18,131.4	48,533.8	5
All growing stock	71,459.8	38,447.0	109,906.8	4
Rough cull trees[b]	2,630.4	3,581.1	6,211.5	9
Rotten cull trees[b]	3,232.1	5,056.3	8,288.4	11
Salvable dead trees[c]	3,408.5	1,324.6	4,733.1	10
Saplings[d]	17,727.2	7,440.5	25,167.7	8
Stumps[e]	1,776.6	1,142.5	2,919.1	3
Tops - growing stock	27,891.4	14,194.0	42,085.4	4
Tops - rough and rotten	2,306.6	3,154.8	5,461.4	7
All nongrowing stock	58,972.8	35,893.8	94,866.6	3
All classes	130,432.6	74,340.8	204,773.4	3.2
Sampling error (percent)	5	6	3.2	

[a] Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b] Main stem portion of trees 5.0 inches dbh and larger between a 1-foot stump height and a 4-inch top dob.

[c] Includes entire tree above a 1-foot stump height.

[d] Includes entire tree above the ground.

[e] Of all trees 5.0 inches dbh and larger.

Table 15.--Net aboveground tree biomass of all trees on timberland by class of material and species group, Sagadahoc County, Maine, 1982

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	1,662.8*	557.7*	2,220.5	21
Upper stem	215.6*	141.0	356.6	17
Total	1,878.4	698.7*	2,577.1	20
Poletimber trees	557.2	1,523.7	2,080.9	14
All growing stock	2,435.6	2,222.4	4,658.0	13
Rough cull trees[b]	465.5	395.6	861.1	21
Rotten cull trees[b]	134.4**	59.9*	194.3**	66
Salvable dead trees[c]	93.3**	28.9**	122.2*	44
Saplings[d]	405.4*	555.0*	960.4	22
Stumps[e]	47.9	62.0	109.9	11
Tops - growing stock	863.9	895.8	1,759.7	12
Tops - rough and rotten	183.0	170.7*	353.7	20
All nongrowing stock	2,193.4	2,167.9	4,361.3	11
All classes	4,629.0	4,390.3	9,019.3	10.6
Sampling error (percent)	18	15	10.6	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.
[b]Main stem portion of trees 5.0 inches dbh and larger between a 1-foot stump height and a 4-inch top dob.
[c]Includes entire tree above a 1-foot stump height.
[d]Includes entire tree above the ground.
[e]Of all trees 5.0 inches dbh and larger.

Table 16.--Net aboveground tree biomass of all trees on timberland by class of material and species group, Somerset County, Maine, 1982

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	30,011.1	19,714.8	49,725.9	5
Upper stem	4,433.6	4,845.9	9,279.5	5
Total	34,444.7	24,560.7	59,005.4	5
Poletimber trees	29,837.8	25,489.4	55,327.2	4
All growing stock	64,282.5	50,050.1	114,332.6	3
Rough cull trees[b]	3,064.0	6,592.2	9,656.2	9
Rotten cull trees[b]	1,231.4	4,780.5	6,011.9	9
Salvable dead trees[c]	3,725.3	1,876.6	5,601.9	10
Saplings[d]	15,993.4	11,932.5	27,925.9	8
Stumps[e]	1,610.1	1,461.3	3,071.4	3
Tops - growing stock	25,690.2	18,856.7	44,546.9	3
Tops - rough and rotten	1,788.2	4,175.7	5,963.9	6
All nongrowing stock	53,102.6	49,675.5	102,778.1	3
All classes	117,385.1	99,725.6	217,110.7	2.8
Sampling error (percent)	5	5	2.8	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Main stem portion of trees 5.0 inches dbh and larger between a 1-foot stump height and a 4-inch top dob.

[c]Includes entire tree above a 1-foot stump height.

[d]Includes entire tree above the ground.

[e]Of all trees 5.0 inches dbh and larger.

Table 17.--Net aboveground tree biomass of all trees on timberland by class of material and species group, Waldo County, Maine, 1982

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	2,887.7	1,565.4	4,453.1	10.8
Upper stem	405.3	425.4	830.7	10.5
Total	3,293.0	1,990.8	5,283.8	10.7
Poletimber trees	2,512.6	5,326.4	7,839.0	6.5
All growing stock	5,805.6	7,317.2	13,122.8	6.3
Rough cull trees[b]	833.9	1,425.8	2,259.7	10.3
Rotten cull trees[b]	171.3	705.4	876.7	15.2
Salvable dead trees[c]	126.1	111.4	237.5	25.4
Saplings[d]	3,085.6	3,793.4	6,879.0	10.2
Stumps[e]	153.1	221.8	374.9	5.8
Tops - growing stock	2,280.9	2,993.5	5,274.4	6.0
Tops - rough and rotten	363.5	837.6	1,201.1	9.0
All nongrowing stock	7,014.4	10,088.9	17,103.3	5.6
All classes	12,820.0	17,406.1	30,226.1	5.0
Sampling error (percent)	9	7	5.0	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.
[b]Main stem portion of trees 5.0 inches dbh and larger between a 1-foot stump height and a 4-inch top dob.
[c]Includes entire tree above a 1-foot stump height.
[d]Includes entire tree above the ground.
[e]Of all trees 5.0 inches dbh and larger.

Table 18.--Net aboveground tree biomass of all trees on timberland by class of material and species group, Washington County, Maine, 1982

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	15,181.8	5,422.7	20,604.5	7
Upper stem	2,209.4	1,442.6	3,652.0	8
Total	17,391.2	6,865.3	24,256.5	7
Poletimber trees	13,216.7	10,313.1	23,529.8	6
All growing stock	30,607.9	17,178.4	47,786.3	5
Rough cull trees[b]	3,990.9	2,566.6	6,557.5	8
Rotten cull trees[b]	1,365.3	2,287.8	3,653.1	11
Salvable dead trees[c]	1,628.7	1,229.3	2,858.0	16
Saplings[d]	14,776.0	12,164.2	26,940.2	9
Stumps[e]	869.1	538.6	1,407.7	4
Tops - growing stock	12,073.9	6,806.2	18,880.1	5
Tops - rough and rotten	2,359.7	1,920.7	4,280.4	6
All nongrowing stock	37,063.6	27,513.4	64,577.0	4
All classes	67,671.5	44,691.8	112,363.3	3.6
Sampling error (percent)	6	8	3.6	

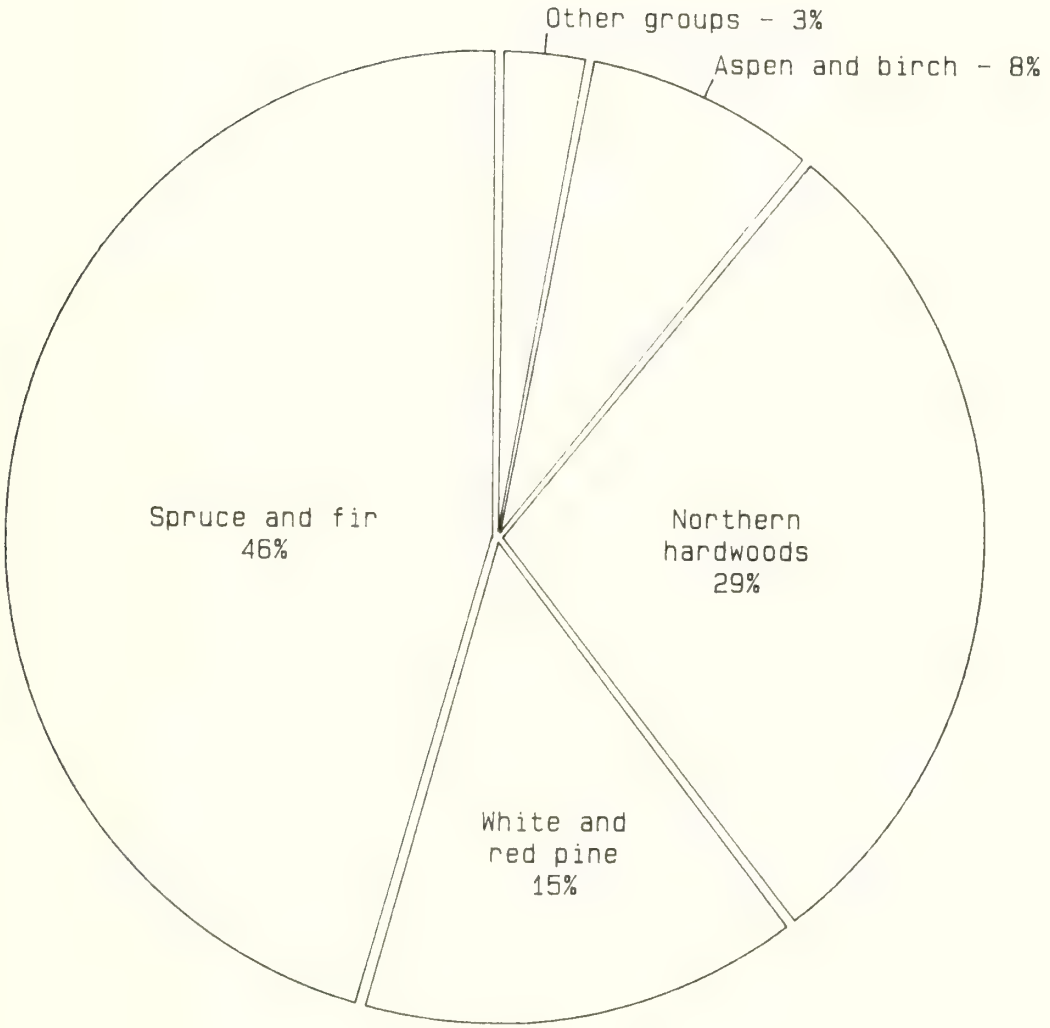
[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.
[b]Main stem portion of trees 5.0 inches dbh and larger between a 1-foot stump height and a 4-inch top dob.
[c]Includes entire tree above a 1-foot stump height.
[d]Includes entire tree above the ground.
[e]Of all trees 5.0 inches dbh and larger.

Table 19.--Net aboveground tree biomass of all trees on timberland by class of material and species group, York County, Maine, 1982

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	10,558.4	2,623.0	13,181.4	9
Upper stem	1,238.9	655.6	1,894.5	8
Total	11,797.3	3,278.6	15,075.9	9
Poletimber trees	2,050.0	6,137.3	8,187.3	6
All growing stock	13,847.3	9,415.9	23,263.2	6
Rough cull trees[b]	2,392.7*	1,186.1	3,578.8	19
Rotten cull trees[b]	331.7	1,226.7	1,558.4	12
Salvable dead trees[c]	129.8*	32.3*	162.1*	30
Saplings[d]	2,160.5	7,313.5	9,474.0	10
Stumps[e]	270.6	293.7	564.3	5
Tops - growing stock	4,667.8	3,789.6	8,457.4	5
Tops - rough and rotten	897.6	952.7	1,850.3	11
All nongrowing stock	10,850.7	14,794.6	25,645.3	5
All classes	24,698.0	24,210.5	48,908.5	4.3
Sampling error (percent)	8	6	4.3	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.
[b]Main stem portion of trees 5.0 inches dbh and larger between a 1-foot stump height and a 4-inch top dob.
[c]Includes entire tree above a 1-foot stump height.
[d]Includes entire tree above the ground.
[e]Of all trees 5.0 inches dbh and larger.

ABOVEGROUND BIOMASS OF ALL LIVE TREES



Distribution of Biomass
by Forest-type Group

Table 20.--Net aboveground tree biomass of all live trees on timberland by forest-type group and stand-size class, Maine, 1982

Forest-type group	Stand-size class				All classes	Samplin error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percen
White/red pine	173,042.9	45,591.3	3,516.3*	.0	222,150.5	6
Spruce/fir	418,558.6	235,171.0	20,542.9	69.0**	674,341.5	3
Loblolly/shortleaf	245.1**	.0	37.1**	.0	282.2	88
Oak/pine	876.0**	1,648.2*	.0	.0	2,524.2	44
Oak/hickory	10,401.3	11,914.5	1,240.7*	.0	23,556.5	15
Elm/ash/red maple	2,670.0*	9,773.2*	938.0*	.0	13,381.2	22
Northern hardwoods	255,248.9	149,874.2	16,496.3	.0	421,619.4	4
Aspen/birch	19,105.4	83,726.7	9,341.1	.0	112,173.2	9
Total, all groups	880,148.2	537,699.1	52,112.4	69.0	1,470,028.7	1.0
Sampling error (percent)	2	3	9	67	1.0	
	Green tons per acre[b]					
White/red pine	112.6	81.9	34.8	.0	101.2	
Spruce/fir	102.5	81.9	25.9	3.0	86.8	
Loblolly/shortleaf	59.8	.0	8.8	.0	34.0	
Oak/pine	56.5	79.6	.0	.0	69.7	
Oak/hickory	98.5	78.3	25.5	.0	76.9	
Elm/ash/red maple	58.0	68.9	18.6	.0	56.2	
Northern hardwoods	99.8	79.0	30.8	.0	84.3	
Aspen/birch	113.4	87.8	24.4	.0	74.5	
All groups	103.3	81.5	27.2	2.1	86.2	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each table cell by the estimate of timberland area for that cell.

Table 21.--Net aboveground tree biomass of all live trees on timberland by forest-type group and stand-size class, Androscoggin County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
hite/red pine	6,278.1*	3,078.9*	.0	.0	9,357.0	19
pruce/fir	237.0**	297.6**	175.1**	.0	709.7	57
oblolly/shortleaf	.0	.0	.0	.0	.0	0
ak/pine	.0	442.3**	.0	.0	442.3	100
ak/hickory	.0	1,017.6**	.0	.0	1,017.6	59
lm/ash/red maple	.0	320.6**	.0	.0	320.6	100
orthern hardwoods	1,675.4*	1,520.9*	780.4**	.0	3,976.7	29
spen/birch	392.5**	2,305.4*	128.8**	.0	2,826.7	39
Total, all groups	8,583.0	8,983.3	1,084.3	.0	18,650.6	6.3
Sampling error (percent)	19	17	56	0	6.3	
	Green tons per acre[b]					
hite/red pine	112.1	90.0	.0	.0	103.7	
pruce/fir	55.1	69.2	40.7	.0	55.0	
oblolly/shortleaf	.0	.0	.0	.0	.0	
ak/pine	.0	102.9	.0	.0	102.9	
ak/hickory	.0	79.5	.0	.0	79.5	
lm/ash/red maple	.0	74.6	.0	.0	74.6	
orthern hardwoods	77.9	88.4	37.7	.0	66.9	
spen/birch	91.3	106.7	30.0	.0	93.6	
All groups	99.7	91.0	37.0	.0	87.1	

[a] Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b] Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each table cell by the estimate of timberland area for that cell.

Table 22.--Net aboveground tree biomass of all live trees on timberland by forest-type group and stand-size class, Aroostook County, Maine, 1982

Forest-type group	Stand-size class				All classes	Samplin error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percen
White/red pine	2,697.9**	286.2**	.0	.0	2,984.1	48
Spruce/fir	132,416.7	59,180.8	4,153.3*	4.3**	195,755.1	5
Loblolly/shortleaf	.0	.0	.0	.0	.0	0
Oak/pine	.0	.0	.0	.0	.0	0
Oak/hickory	.0	.0	.0	.0	.0	0
Elm/ash/red maple	293.2**	2,736.4**	393.4**	.0	3,423.0	43
Northern hardwoods	66,814.4	17,442.9	2,112.8*	.0	86,370.1	9
Aspen/birch	4,834.3*	21,296.4	1,815.6*	.0	27,946.3	16
Total, all groups	207,056.5	100,942.7	8,475.1	4.3	316,478.6	1.9
Sampling error (percent)	5	8	17	100	1.9	
	Green tons per acre[b]					
White/red pine	79.8	33.7	.0	.0	70.5	
Spruce/fir	99.2	81.7	24.4	.5	87.5	
Loblolly/shortleaf	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	.0	.0	.0	.0	
Elm/ash/red maple	33.3	81.4	22.7	.0	57.3	
Northern hardwoods	96.2	77.0	18.9	.0	83.6	
Aspen/birch	114.3	81.5	19.6	.0	70.6	
All groups	97.9	80.5	21.6	.5	84.0	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each table cell by the estimate of timberland area for that cell.

Table 23.--Net aboveground tree biomass of all live trees on timberland by forest-type group and stand-size class, Cumberland County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	20,632.9	5,214.3*	684.5*	.0	26,531.7	9
Spruce/fir	204.3**	329.0**	.0	27.4**	560.7	69
Loblolly/shortleaf	.0	.0	.0	.0	.0	0
Oak/pine	.0	607.4**	.0	.0	607.4	72
Oak/hickory	500.5**	1,896.7*	.0	.0	2,397.2	41
Elm/ash/red maple	.0	68.6**	22.4**	.0	91.0	79
Northern hardwoods	1,941.3*	3,449.8*	388.5**	.0	5,779.6	23
Aspen/birch	.0	348.3**	.0	.0	348.3	71
Total, all groups	23,279.0	11,914.1	1,095.4	27.4	36,315.9	4.6
Sampling error (percent)	10	16	38	100	4.6	
	Green tons per acre[b]					
White/red pine	107.2	102.8	32.9	.0	100.5	
Spruce/fir	51.1	78.3	.0	5.5	42.5	
Loblolly/shortleaf	.0	.0	.0	.0	.0	
Oak/pine	.0	73.2	.0	.0	73.2	
Oak/hickory	116.4	90.8	.0	.0	95.1	
Elm/ash/red maple	.0	16.3	5.6	.0	11.1	
Northern hardwoods	92.0	69.0	46.3	.0	72.7	
Aspen/birch	.0	42.5	.0	.0	42.5	
All groups	105.0	81.3	33.0	5.5	89.3	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each table cell by the estimate of timberland area for that cell.

Table 24.--Net aboveground tree biomass of all live trees on timberland by forest-type group and stand-size class, Franklin County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	6,170.7*	.0	.0	.0	6,170.7	48
Spruce/fir	15,892.3*	17,838.8	759.9**	.0	34,491.0	15
Loblolly/shortleaf	.0	.0	.0	.0	.0	0
Oak/pine	.0	.0	.0	.0	.0	0
Oak/hickory	.0	.0	.0	.0	.0	0
Elm/ash/red maple	.0	.0	.0	.0	.0	0
Northern hardwoods	18,735.1	19,512.1	795.2**	.0	39,042.4	12
Aspen/birch	1,129.2**	8,545.0*	369.6**	.0	10,043.8	31
Total, all groups	41,927.3	45,895.9	1,924.7	.0	89,747.9	3.6
Sampling error (percent)	13	11	46	0	3.6	
	Green tons per acre[b]					
White/red pine	118.4	.0	.0	.0	118.4	
Spruce/fir	109.2	87.5	18.9	.0	88.5	
Loblolly/shortleaf	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	.0	.0	.0	.0	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	102.3	76.2	42.8	.0	85.2	
Aspen/birch	107.5	100.8	19.3	.0	87.7	
All groups	107.1	84.2	24.6	.0	88.5	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each table cell by the estimate of timberland area for that cell.

Table 25.--Net aboveground tree biomass of all live trees on timberland by forest-type group and stand-size class, Hancock County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
Vite/red pine	9,297.0*	675.7**	452.8**	.0	10,425.5	32
Spruce/fir	20,017.8*	14,076.8**	1,173.2**	37.3**	35,305.1	12
Iblolly/shortleaf	.0	.0	.0	.0	.0	0
Ok/pine	.0	.0	.0	.0	.0	0
Ok/hickory	334.1**	.0	302.5**	.0	636.6	100
Im/ash/red maple	.0	461.2**	.0	.0	461.2	100
Irthern hardwoods	7,337.6*	4,936.0*	1,674.2**	.0	13,947.8	23
Aspen/birch	.0	5,337.2**	198.1**	.0	5,535.3	41
Total, all groups	36,986.5	25,486.9	3,800.8	37.3	66,311.5	5.1
Sampling error (percent)	13	15	41	100	5.1	
	Green tons per acre[b]					
Vite/red pine	124.8	73.4	49.2	.0	112.2	
Spruce/fir	106.1	84.2	31.3	3.8	87.6	
Iblolly/shortleaf	.0	.0	.0	.0	.0	
Ok/pine	.0	.0	.0	.0	.0	
Ok/hickory	36.3	.0	31.2	.0	33.7	
Im/ash/red maple	.0	48.5	.0	.0	48.5	
Irthern hardwoods	98.4	75.8	36.2	.0	75.0	
Aspen/birch	.0	94.8	20.4	.0	83.9	
All groups	106.6	82.9	33.8	3.8	85.4	

ampling errors are expressed as a percent of the total and are included only for row and column ttals. A single asterisk (*) by a cell value indicates that the estimate has an associated mpling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has associated sampling error greater than 50 percent, and therefore is not significantly different om zero.

er-acre estimates were developed by dividing the estimate of aboveground tree biomass for each tble cell by the estimate of timberland area for that cell.

Table 26.--Net aboveground tree biomass of all live trees on timberland by forest-type group and stand-size class, Kennebec County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	14,912.2	2,136.2*	94.3**	.0	17,142.7	13
Spruce/fir	.0	1,974.0*	.0	.0	1,974.0	44
Loblolly/shortleaf	.0	.0	.0	.0	.0	0
Oak/pine	.0	521.0**	.0	.0	521.0	100
Oak/hickory	531.5**	939.6**	.0	.0	1,471.1	52
Elm/ash/red maple	481.3**	220.2**	1.8**	.0	703.3	74
Northern hardwoods	3,484.4*	5,934.5	254.0**	.0	9,672.9	18
Aspen/birch	500.2**	3,995.0*	.0	.0	4,495.2	28
Total, all groups	19,909.6	15,720.5	350.1	.0	35,980.2	4.5
Sampling error (percent)	12	12	65	0	4.5	
	Green tons per acre[b]					
White/red pine	100.7	76.3	11.1	.0	92.9	
Spruce/fir	.0	99.2	.0	.0	99.2	
Loblolly/shortleaf	.0	.0	.0	.0	.0	
Oak/pine	.0	130.3	.0	.0	130.3	
Oak/hickory	132.9	78.3	.0	.0	91.9	
Elm/ash/red maple	117.4	55.1	.5	.0	58.1	
Northern hardwoods	96.8	87.3	31.8	.0	86.4	
Aspen/birch	125.1	82.9	.0	.0	86.1	
All groups	101.5	85.4	17.1	.0	89.8	

[a] Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b] Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each table cell by the estimate of timberland area for that cell.

Table 27.--Net aboveground tree biomass of all live trees on timberland by forest-type group and stand-size class, Knox County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
ıite/red pine	2,457.9*	354.6**	.0	.0	2,812.5	40
›ruce/fir	3,660.2*	2,150.4*	183.7**	.0	5,994.3	20
›blolly/shortleaf	.0	.0	.0	.0	.0	0
ık/pine	.0	.0	.0	.0	.0	0
ık/hickory	1,008.1**	381.5**	84.3**	.0	1,473.9	54
.m/ash/red maple	.0	.0	.0	.0	.0	0
›rthern hardwoods	3,095.5*	878.8**	38.0**	.0	4,012.3	31
›pen/birch	.0	892.9**	159.0**	.0	1,051.9	51
Total, all groups	10,221.7	4,658.2	465.0	.0	15,344.9	7.2
Sampling error (percent)	15	25	47	0	7.2	
	Green tons per acre[b]					
ıite/red pine	118.2	84.4	.0	.0	112.5	
›ruce/fir	118.1	83.0	21.9	.0	91.8	
›blolly/shortleaf	.0	.0	.0	.0	.0	
ık/pine	.0	.0	.0	.0	.0	
ık/hickory	121.5	90.8	20.1	.0	88.3	
.m/ash/red maple	.0	.0	.0	.0	.0	
›rthern hardwoods	106.4	105.9	9.0	.0	96.4	
›pen/birch	.0	70.9	37.9	.0	62.6	
All groups	114.6	84.4	22.1	.0	92.8	

[a] ›ampling errors are expressed as a percent of the total and are included only for row and column ›tals. A single asterisk (*) by a cell value indicates that the estimate has an associated ımpling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has ı associated sampling error greater than 50 percent, and therefore is not significantly different ›om zero.

[b] ›er-acre estimates were developed by dividing the estimate of aboveground tree biomass for each ›ble cell by the estimate of timberland area for that cell.

Table 28.--Net aboveground tree biomass of all live trees on timberland by forest-type group and stand-size class, Lincoln County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	7,958.3*	1,771.0*	167.3**	.0	9,896.6	17
Spruce/fir	2,703.2**	1,088.1**	611.6*	.0	4,402.9	33
Loblolly/shortleaf	.0	.0	.0	.0	.0	0
Oak/pine	.0	.0	.0	.0	.0	0
Oak/hickory	2,222.7*	598.7**	128.3**	.0	2,949.7	32
Elm/ash/red maple	.0	855.4**	.0	.0	855.4	59
Northern hardwoods	857.3**	1,211.6**	287.2**	.0	2,356.1	37
Aspen/birch	.0	344.9**	.0	.0	344.9	100
Total, all groups	13,741.5	5,869.7	1,194.4	.0	20,805.6	6.9
Sampling error (percent)	14	21	32	0	6.5	
	Green tons per acre[b]					
White/red pine	121.9	75.4	21.7	.0	102.6	
Spruce/fir	175.5	96.3	26.5	.0	88.4	
Loblolly/shortleaf	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	97.5	78.8	32.9	.0	86.0	
Elm/ash/red maple	.0	71.9	.0	.0	71.9	
Northern hardwoods	107.2	103.6	35.5	.0	84.8	
Aspen/birch	.0	90.8	.0	.0	90.8	
All groups	123.2	84.1	27.9	.0	92.8	

[a] Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b] Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each table cell by the estimate of timberland area for that cell.

Table 29.--Net aboveground tree biomass of all live trees on timberland by forest-type group and stand-size class, Oxford County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
hite/red pine	16,456.8*	9,861.7*	.0	.0	26,318.5	19
pruce/fir	10,145.2*	5,990.7*	1,325.2**	.0	17,461.1	22
oblolly/shortleaf	.0	.0	.0	.0	.0	0
ak/pine	735.6**	.0	.0	.0	735.6	100
ak/hickory	.0	2,081.5**	.0	.0	2,081.5	62
lm/ash/red maple	.0	128.6**	.0	.0	128.6	100
orthern hardwoods	26,014.6	18,992.5	2,016.3**	.0	47,023.4	12
spen/birch	.0	6,920.6*	777.8**	.0	7,698.4	32
Total, all groups	53,352.2	43,975.6	4,119.3	.0	101,447.1	3.7
Sampling error (percent)	12	11	35	0	3.7	
	Green tons per acre[b]					
hite/red pine	96.6	84.4	.0	.0	91.6	
pruce/fir	95.3	70.6	31.0	.0	74.6	
oblolly/shortleaf	.0	.0	.0	.0	.0	
ak/pine	69.4	.0	.0	.0	69.4	
ak/hickory	.0	65.5	.0	.0	65.5	
lm/ash/red maple	.0	23.8	.0	.0	23.8	
orthern hardwoods	111.3	78.3	66.8	.0	92.8	
spen/birch	.0	81.5	25.9	.0	67.0	
All groups	102.4	77.6	40.0	.0	85.2	

Sampling errors are expressed as a percent of the total and are included only for row and column otals. A single asterisk (*) by a cell value indicates that the estimate has an associated ampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has n associated sampling error greater than 50 percent, and therefore is not significantly different rom zero.

Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each able cell by the estimate of timberland area for that cell.

Table 30.--Net aboveground tree biomass of all live trees on timberland by forest-type group and stand-size class, Penobscot County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	25,901.9	6,397.9*	568.8**	.0	32,868.6	18
Spruce/fir	41,590.2	23,690.1	2,113.5*	.0	67,393.8	9
Loblolly/shortleaf	.0	.0	.0	.0	.0	0
Oak/pine	.0	.0	.0	.0	.0	0
Oak/hickory	.0	.0	.0	.0	.0	0
Elm/ash/red maple	1,341.8**	1,390.7**	114.0**	.0	2,846.5	53
Northern hardwoods	20,023.2	19,910.8	511.6**	.0	40,445.6	13
Aspen/birch	2,184.8**	14,270.2	679.1**	.0	17,134.1	23
Total, all groups	91,041.9	65,659.7	3,987.0	.0	160,688.6	3.2
Sampling error (percent)	8	9	35	0	3.2	
	Green tons per acre[b]					
White/red pine	118.1	74.1	59.3	.0	104.3	
Spruce/fir	98.3	72.8	37.3	.0	83.7	
Loblolly/shortleaf	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	.0	.0	.0	.0	
Elm/ash/red maple	70.3	72.4	11.9	.0	59.4	
Northern hardwoods	95.3	77.5	17.6	.0	80.1	
Aspen/birch	113.8	88.1	36.7	.0	85.8	
All groups	102.2	77.3	32.3	.0	85.8	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each table cell by the estimate of timberland area for that cell.

Table 31.--Net aboveground tree biomass of all live trees on timberland by forest-type group and stand-size class, Piscataquis County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	7,734.6*	2,021.4**	.0	.0	9,756.0	36
Spruce/fir	87,491.6	32,825.3	4,859.2*	.0	125,176.1	7
Loblolly/shortleaf	.0	.0	.0	.0	.0	0
Oak/pine	.0	.0	.0	.0	.0	0
Oak/hickory	1,284.3**	.0	.0	.0	1,284.3	100
Elm/ash/red maple	.0	616.1**	.0	.0	616.1	100
Northern hardwoods	37,888.2	16,099.7	1,461.0**	.0	55,448.9	12
Aspen/birch	851.0**	4,715.4**	2,013.4**	.0	7,579.8	34
Total, all groups	135,249.7	56,277.9	8,333.6	.0	199,861.2	3.2
Sampling error (percent)	7	12	23	0	3.2	
	Green tons per acre[b]					
White/red pine	119.4	64.6	.0	.0	101.5	
Spruce/fir	108.1	89.0	27.0	.0	92.2	
Loblolly/shortleaf	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	122.3	.0	.0	.0	122.3	
Elm/ash/red maple	.0	58.7	.0	.0	58.7	
Northern hardwoods	97.2	78.7	22.7	.0	84.2	
Aspen/birch	81.0	89.6	48.6	.0	72.5	
All groups	105.3	84.2	29.2	.0	89.3	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each table cell by the estimate of timberland area for that cell.

Table 32.--Net aboveground tree biomass of all live trees on timberland by forest-type group and stand-size class, Sagadahoc County, Maine, 1982

Forest-type group	Stand-size class				All classes	Samplir error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percen
White/red pine	3,920.0*	463.9**	53.9**	.0	4,437.8	25
Spruce/fir	192.5**	.0	.0	.0	192.5	100
Loblolly/shortleaf	.0	.0	.0	.0	.0	0
Oak/pine	140.4**	.0	.0	.0	140.4	100
Oak/hickory	595.1**	316.4**	.0	.0	911.5	58
Elm/ash/red maple	.0	.0	162.4**	.0	162.4	100
Northern hardwoods	1,468.8*	1,103.3**	3.0**	.0	2,575.1	34
Aspen/birch	.0	474.7**	.0	.0	474.7	100
Total, all groups	6,316.8	2,358.3	219.3	.0	8,894.4	10.6
Sampling error (percent)	18	35	78	0	10.6	
	Green tons per acre[b]					
White/red pine	95.4	36.2	14.2	.0	76.9	
Spruce/fir	43.8	.0	.0	.0	43.8	
Loblolly/shortleaf	.0	.0	.0	.0	.0	
Oak/pine	29.3	.0	.0	.0	29.3	
Oak/hickory	64.0	70.3	.0	.0	66.1	
Elm/ash/red maple	.0	.0	36.1	.0	36.1	
Northern hardwoods	82.1	83.6	.8	.0	73.6	
Aspen/birch	.0	105.5	.0	.0	105.5	
All groups	81.5	67.4	18.0	.0	71.3	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each table cell by the estimate of timberland area for that cell.

Table 33.--Net aboveground tree biomass of all live trees on timberland by forest-type group and stand-size class, Somerset County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
ıite/red pine	10,621.2*	5,973.0*	386.7**	.0	16,980.9	26
›ruce/fir	69,127.6	40,050.8	2,677.9*	.0	111,856.3	8
›blolly/shortleaf	.0	.0	.0	.0	.0	0
ık/pine	.0	.0	.0	.0	.0	0
ık/hickory	.0	979.2**	.0	.0	979.2	100
.m/ash/red maple	435.4**	1,378.2**	.0	.0	1,813.6	79
›rthern hardwoods	49,847.4	16,982.6	2,151.7*	.0	68,981.7	10
›pen/birch	3,747.1**	6,651.5*	337.4**	.0	10,736.0	31
Total, all groups	133,778.7	72,015.3	5,553.7	.0	211,347.7	2.8
Sampling error (percent)	6	10	25	0	2.8	
	Green tons per acre[b]					
ıite/red pine	128.3	82.5	18.7	.0	96.5	
›ruce/fir	105.6	83.9	21.6	.0	89.1	
›blolly/shortleaf	.0	.0	.0	.0	.0	
ık/pine	.0	.0	.0	.0	.0	
ık/hickory	.0	94.2	.0	.0	94.2	
lm/ash/red maple	41.9	133.8	.0	.0	87.6	
›rthern hardwoods	104.3	86.2	29.7	.0	92.3	
›pen/birch	119.7	91.7	16.3	.0	86.2	
All groups	106.4	85.8	23.3	.0	90.5	

Sampling errors are expressed as a percent of the total and are included only for row and column ›tals. A single asterisk (*) by a cell value indicates that the estimate has an associated ampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has n associated sampling error greater than 50 percent, and therefore is not significantly different rom zero.

Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each able cell by the estimate of timberland area for that cell.

Table 34.--Net aboveground tree biomass of all live trees on timberland by forest-type group and stand-size class, Waldo County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	3,712.5*	1,222.9*	157.8**	.0	5,093.2	28
Spruce/fir	4,533.7*	4,875.4*	260.6**	.0	9,669.7	18
Loblolly/shortleaf	.0	.0	.0	.0	.0	0
Oak/pine	.0	.0	.0	.0	.0	0
Oak/hickory	539.2**	364.3**	161.1**	.0	1,064.6	63
Elm/ash/red maple	.0	238.4**	.0	.0	238.4	75
Northern hardwoods	3,233.8*	6,915.7*	981.6*	.0	11,131.1	16
Aspen/birch	.0	2,519.1*	263.4**	.0	2,782.5	36
Total, all groups	12,019.2	16,135.8	1,824.5	.0	29,979.5	5.1
Sampling error (percent)	17	11	27	0	5.1	
	Green tons per acre[b]					
White/red pine	114.2	76.0	38.5	.0	96.6	
Spruce/fir	111.9	80.9	32.6	.0	88.9	
Loblolly/shortleaf	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	134.8	91.1	40.3	.0	88.7	
Elm/ash/red maple	.0	31.0	.0	.0	31.0	
Northern hardwoods	115.1	85.9	30.1	.0	78.8	
Aspen/birch	.0	78.5	34.7	.0	70.1	
All groups	114.4	80.4	32.4	.0	82.8	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each table cell by the estimate of timberland area for that cell.

Table 35.--Net aboveground tree biomass of all live trees on timberland by forest-type group and stand-size class, Washington County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	7,814.1*	2,119.6**	.0	.0	9,933.7	34
Spruce/fir	29,910.4	30,492.8	2,249.7*	.0	62,652.9	9
Loblolly/shortleaf	.0	.0	.0	.0	.0	0
Oak/pine	.0	.0	.0	.0	.0	0
Oak/hickory	.0	1,061.2**	64.0**	.0	1,125.2	95
Elm/ash/red maple	.0	1,358.8**	244.0**	.0	1,602.8	63
Northern hardwoods	11,745.8*	9,739.6*	2,359.9*	.0	23,845.3	19
Aspen/birch	4,738.5**	3,674.5**	1,858.9**	.0	10,271.9	32
Total, all groups	54,208.8	48,446.5	6,776.5	.0	109,431.8	3.6
Sampling error (percent)	11	11	26	0	3.6	
	Green tons per acre[b]					
White/red pine	105.9	100.0	.0	.0	104.6	
Spruce/fir	94.2	78.1	23.2	.0	77.9	
Loblolly/shortleaf	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	100.1	5.8	.0	52.1	
Elm/ash/red maple	.0	64.4	22.2	.0	49.9	
Northern hardwoods	101.3	70.4	36.8	.0	74.9	
Aspen/birch	112.3	114.5	17.2	.0	56.3	
All groups	98.7	79.0	23.3	.0	75.3	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

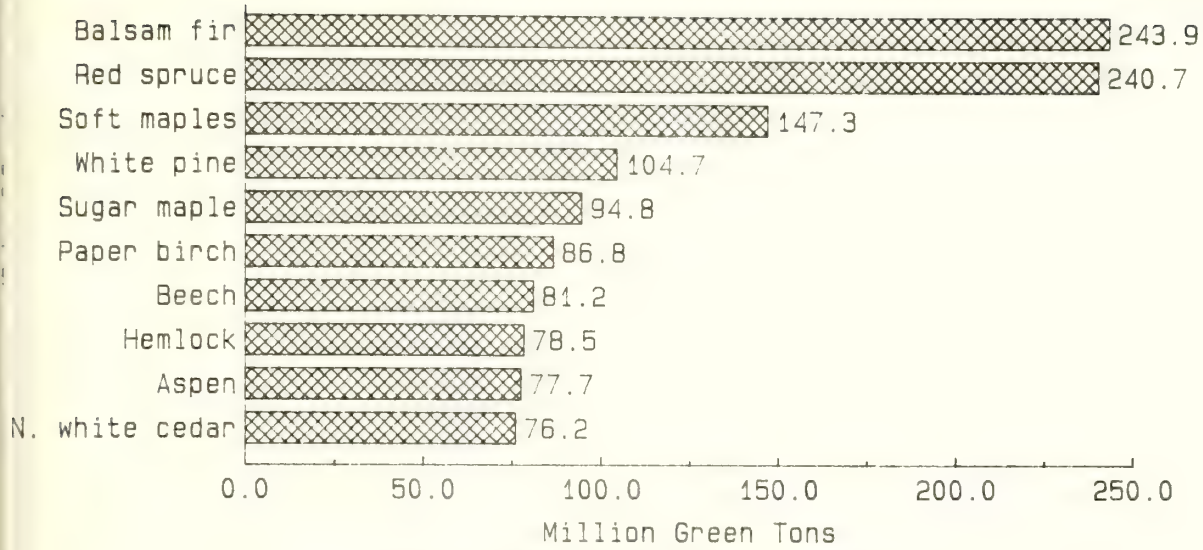
[b]Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each table cell by the estimate of timberland area for that cell.

Table 36.--Net aboveground tree biomass of all live trees on timberland by forest-type group and stand-size class, York County, Maine, 1982

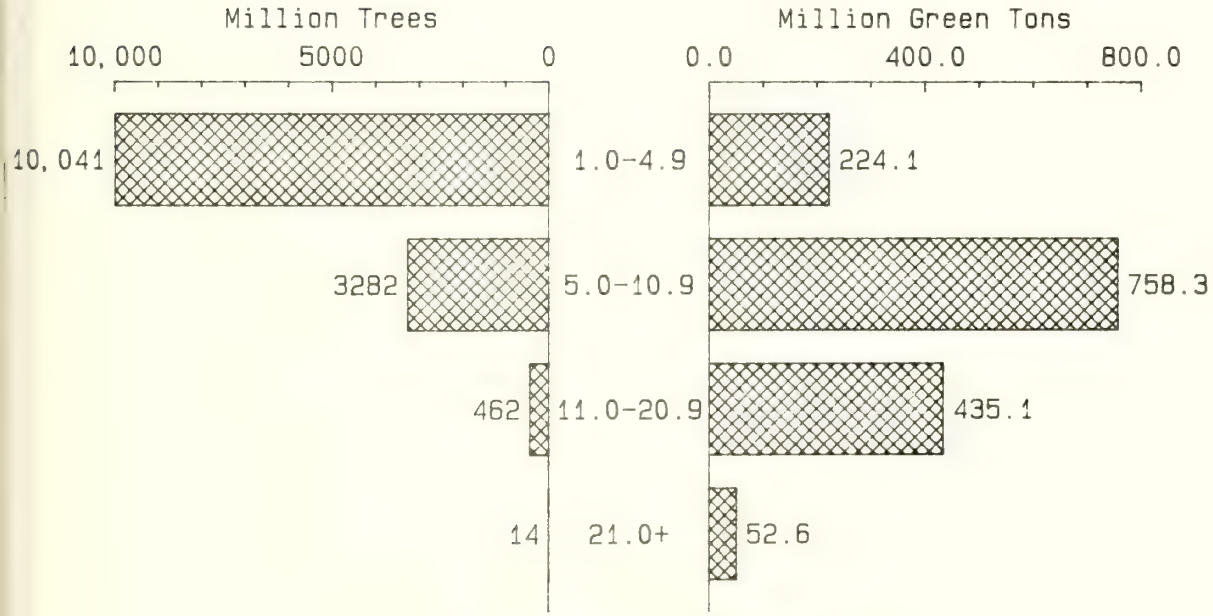
Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	26,476.8	4,014.0*	950.2**	.0	31,441.0	10
Spruce/fir	435.9**	310.4**	.0	.0	746.3	71
Loblolly/shortleaf	245.1**	.0	37.1**	.0	282.2	88
Oak/pine	.0	77.5**	.0	.0	77.5	100
Oak/hickory	3,385.8*	2,277.8*	500.5**	.0	6,164.1	23
Elm/ash/red maple	118.3**	.0	.0	.0	118.3	100
Northern hardwoods	1,086.1**	5,243.4*	680.9**	.0	7,010.4	21
Aspen/birch	727.8**	1,435.6**	740.0*	.0	2,903.4	37
Total, all groups	32,475.8	13,358.7	2,908.7	.0	48,743.2	4.3
Sampling error (percent)	9	14	29	0	4.3	
	Green tons per acre[b]					
White/red pine	126.7	96.3	56.9	.0	117.6	
Spruce/fir	106.3	73.9	.0	.0	89.9	
Loblolly/shortleaf	58.4	.0	9.0	.0	34.0	
Oak/pine	.0	18.5	.0	.0	18.5	
Oak/hickory	101.4	68.2	31.9	.0	74.7	
Elm/ash/red maple	32.0	.0	.0	.0	32.0	
Northern hardwoods	65.0	84.6	50.8	.0	76.1	
Aspen/birch	173.3	86.5	28.1	.0	61.6	
All groups	118.0	82.4	38.2	.0	94.9	

[a] Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b] Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each table cell by the estimate of timberland area for that cell.



Aboveground Tree Biomass
of the Top Ten Species



Number of Trees
and Aboveground Tree Biomass
by Diameter Group

Table 37.--Number of trees and net aboveground tree biomass of all live trees on timberland by species and diameter group, Maine, 1982

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	3,043,298	784,001	32,293	16	3,859,608
Tamarack	42,070	15,742	2,983	25	60,820
White spruce	138,765	79,362	7,676	42	225,845
Black spruce	186,131	85,703	2,989	0	274,823
Red spruce	854,501	551,021	79,499	738	1,485,759
Red pine	3,621	3,964	2,335	15	9,935
White pine	210,662	100,903	41,133	3,939	356,637
Northern white-cedar	441,434	281,394	59,809	959	783,596
Hemlock	243,237	141,589	36,018	1,141	421,985
Other softwoods	840	1,185	389	0	2,414
Total softwoods	5,164,559	2,044,864	265,124	6,875	7,481,422
Sugar maple	425,379	115,565	34,719	2,985	578,648
Soft maples	1,191,989	334,247	42,793	846	1,569,875
Yellow birch	322,646	94,612	30,138	2,234	449,630
Paper birch	491,161	199,387	15,686	83	706,317
Gray birch	242,533	33,824	469	0	276,826
Beech	640,723	129,750	27,728	394	798,595
White ash	102,516	30,070	4,558	119	137,263
Black ash	83,370	25,713	2,975	29	112,087
Aspen	304,319	163,295	25,554	200	493,368
White oaks	16,876	4,206	314	41	21,437
Red oaks	110,543	43,859	8,710	329	163,441
Basswood	13,979	1,955	792	4	16,730
Elm	17,025	4,628	900	119	22,672
Other commercial hardwoods	67,080	9,683	758	41	77,562
Noncommercial hardwoods	846,249	46,485	658	23	893,415
Total hardwoods	4,876,388	1,237,279	196,752	7,447	6,317,866
Total, all species	10,040,947	3,282,143	461,876	14,322	13,799,288

Table 37.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	57,817.6	161,393.7	24,657.2	42.6	243,911.1
Tamarack	1,378.1	3,211.1	2,431.3	61.0	7,081.5
White spruce	4,843.0	18,587.8	6,977.6	133.3	30,541.7
Black spruce	5,881.4	17,704.6	2,670.4	.0	26,256.4
Red spruce	24,957.3	137,884.2	75,560.1	2,339.1	240,740.7
Red pine	130.4	1,517.1	2,764.1	22.4	4,434.0
White pine	5,288.7	27,212.4	52,275.1	19,946.5	104,722.7
Northern white-cedar	11,247.3	39,877.0	24,191.9	923.5	76,239.7
Hemlock	6,386.9	34,479.4	34,196.3	3,453.8	78,516.4
Other softwoods	28.5	211.7	173.5	.0	413.7
Total softwoods	117,959.2	442,079.0	225,897.5	26,922.2	812,857.9
Sugar maple	9,601.6	32,517.0	42,167.1	10,474.9	94,760.6
Soft maples	24,842.7	78,459.7	41,190.1	2,775.1	147,267.6
Yellow birch	6,476.4	27,934.2	33,332.6	7,238.0	74,981.2
Paper birch	12,391.3	55,416.7	18,526.3	483.8	86,818.1
Gray birch	7,707.7	5,677.5	443.0	.0	13,828.2
Beech	15,207.2	36,822.1	28,069.9	1,060.6	81,159.8
White ash	2,235.6	8,022.0	4,584.8	479.2	15,321.6
Black ash	2,236.4	5,805.0	2,720.5	77.3	10,839.2
Aspen	7,346.4	44,032.9	25,583.1	703.3	77,665.7
White oaks	568.1	846.4	423.6	183.4	2,021.5
Red oaks	2,789.1	11,201.2	9,529.3	1,368.3	24,887.9
Basswood	160.1	290.3	389.3	2.5	842.2
Elm	506.3	1,086.1	1,014.0	661.2	3,267.6
Other commercial hardwoods	1,312.2	2,095.3	655.8	82.6	4,145.9
Noncommercial hardwoods	12,805.0	5,983.6	528.8	46.3	19,363.7
Total hardwoods	106,186.1	316,190.0	209,158.2	25,636.5	657,170.8
Total, all species	224,145.3	758,269.0	435,055.7	52,558.7	1,470,028.7

Table 38.--Number of trees and net aboveground tree biomass of all live trees on timberland by species and diameter group, Androscoggin County, Maine, 1982

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	32,925	3,351	150	0	36,426
Tamarack	0	59	45	0	104
White spruce	0	30	0	0	30
Black spruce	0	0	0	0	0
Red spruce	863	643	62	0	1,568
Red pine	0	15	15	0	30
White pine	25,984	4,843	2,072	172	33,071
Northern white-cedar	0	15	0	0	15
Hemlock	1,725	3,228	773	0	5,726
Other softwoods	0	0	0	0	0
Total softwoods	61,497	12,184	3,117	172	76,970
Sugar maple	3,491	372	72	2	3,937
Soft maples	29,460	7,998	840	21	38,319
Yellow birch	1,729	182	30	0	1,941
Paper birch	8,712	1,620	56	0	10,388
Gray birch	5,180	1,033	45	0	6,258
Beech	8,720	590	72	0	9,382
White ash	6,043	901	0	0	6,944
Black ash	866	88	0	0	954
Aspen	6,990	6,261	278	0	13,529
White oaks	0	29	0	0	29
Red oaks	5,190	4,129	394	0	9,713
Basswood	0	0	0	0	0
Elm	863	58	0	0	921
Other commercial hardwoods	866	30	0	0	896
Noncommercial hardwoods	7,670	220	0	0	7,890
Total hardwoods	85,780	23,511	1,787	23	111,101
Total, all species	147,277	35,695	4,904	195	188,071

Table 38.-- Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	533.1	715.5	105.4	.0	1,354.0
Tamarack	.0	8.1	34.6	.0	42.7
White spruce	.0	3.7	.0	.0	3.7
Black spruce	.0	.0	.0	.0	.0
Red spruce	10.1	151.2	46.5	.0	207.8
Red pine	.0	8.7	26.8	.0	35.5
White pine	643.1	1,185.5	2,696.6	814.0	5,339.2
Northern white-cedar	.0	2.7	.0	.0	2.7
Hemlock	90.3	758.8	787.9	.0	1,637.0
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	1,276.6	2,834.2	3,697.8	814.0	8,622.6
Sugar maple	164.3	64.6	103.8	22.6	355.3
Soft maples	782.2	1,845.8	808.7	93.5	3,530.2
Yellow birch	57.9	30.6	44.7	.0	133.2
Paper birch	139.0	483.2	104.3	.0	726.5
Gray birch	170.7	166.2	33.4	.0	370.3
Beech	358.5	199.7	91.5	.0	649.7
White ash	84.0	213.1	.0	.0	297.1
Black ash	7.8	15.2	.0	.0	23.0
Aspen	92.4	1,562.5	264.3	.0	1,919.2
White oaks	.0	5.3	.0	.0	5.3
Red oaks	175.1	1,078.8	454.8	.0	1,708.7
Basswood	.0	.0	.0	.0	.0
Elm	53.7	14.3	.0	.0	68.0
Other commercial hardwoods	42.5	3.9	.0	.0	46.4
Noncommercial hardwoods	148.4	46.7	.0	.0	195.1
Total hardwoods	2,276.5	5,729.9	1,905.5	116.1	10,028.0
Total, all species	3,553.1	8,564.1	5,603.3	930.1	18,650.6

Table 39.--Number of trees and net aboveground tree biomass of all live trees on timberland by species and diameter group, Aroostook County, Maine, 1982

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	580,672	239,309	12,732	0	832,713
Tamarack	12,168	4,162	1,095	13	17,438
White spruce	47,801	31,681	4,193	42	83,717
Black spruce	62,971	45,737	814	0	109,522
Red spruce	117,608	109,054	19,756	181	246,599
Red pine	0	0	0	0	0
White pine	1,723	2,205	1,092	225	5,245
Northern white-cedar	180,515	103,859	26,640	469	311,483
Hemlock	15,534	7,170	2,919	256	25,879
Other softwoods	0	58	0	0	58
Total softwoods	1,018,992	543,235	69,241	1,186	1,632,654
Sugar maple	128,590	35,364	10,834	1,191	175,979
Soft maples	171,838	35,983	5,057	60	212,938
Yellow birch	56,611	16,520	5,942	321	79,394
Paper birch	83,644	28,659	1,327	10	113,640
Gray birch	1,723	177	0	0	1,900
Beech	78,838	21,978	9,779	178	110,773
White ash	12,000	1,916	294	18	14,228
Black ash	22,402	6,138	1,107	29	29,676
Aspen	87,452	43,843	7,641	120	139,056
White oaks	0	0	0	0	0
Red oaks	0	0	70	0	70
Basswood	3,499	59	0	0	3,558
Elm	3,456	1,036	121	8	4,621
Other commercial hardwoods	0	119	37	0	156
Noncommercial hardwoods	166,820	5,442	81	0	172,343
Total hardwoods	816,873	197,234	42,290	1,935	1,058,332
Total, all species	1,835,865	740,469	111,531	3,121	2,690,986

Table 39.-- Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	13,931.9	51,277.8	9,591.3	.0	74,801.0
Tamarack	213.6	846.6	1,041.8	29.6	2,131.6
White spruce	1,571.0	7,903.1	3,575.0	133.3	13,182.4
Black spruce	1,745.4	9,421.5	682.9	.0	11,849.8
Red spruce	3,593.3	28,444.4	18,854.0	510.0	51,401.7
Red pine	.0	.0	.0	.0	.0
White pine	13.2	493.1	1,460.7	1,101.2	3,068.2
Northern white-cedar	4,517.5	15,267.2	10,973.7	484.6	31,243.0
Hemlock	597.0	1,705.3	2,747.8	697.8	5,747.9
Other softwoods	.0	18.3	.0	.0	18.3
Total softwoods	26,182.9	115,377.3	48,927.2	2,956.5	193,443.9
Sugar maple	2,919.6	9,543.3	14,097.3	4,283.0	30,843.2
Soft maples	3,823.1	8,094.4	5,162.9	73.6	17,154.0
Yellow birch	947.4	4,895.1	6,758.7	952.0	13,553.2
Paper birch	2,646.1	7,767.8	1,554.4	35.5	12,003.8
Gray birch	163.2	27.6	.0	.0	190.8
Beech	2,058.6	6,579.0	10,760.9	596.2	19,994.7
White ash	356.9	533.5	345.7	84.8	1,320.9
Black ash	346.4	1,511.4	1,049.7	77.3	2,984.8
Aspen	1,595.8	12,034.3	7,388.9	446.4	21,465.4
White oaks	.0	.0	.0	.0	.0
Red oaks	.0	.0	55.8	.0	55.8
Basswood	11.0	5.5	.0	.0	16.5
Elm	110.3	255.9	98.5	34.8	499.5
Other commercial hardwoods	.0	13.4	33.7	.0	47.1
Noncommercial hardwoods	2,108.7	702.5	93.8	.0	2,905.0
Total hardwoods	17,087.1	51,963.7	47,400.3	6,583.6	123,034.7
Total, all species	43,270.0	167,341.0	96,327.5	9,540.1	316,478.6

Table 40.--Number of trees and net aboveground tree biomass of all live trees on timberland by species and diameter group, Cumberland County, Maine, 1982

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	22,659	2,285	32	0	24,976
Tamarack	0	0	0	0	0
White spruce	0	0	0	0	0
Black spruce	0	28	14	0	42
Red spruce	13,946	1,037	98	0	15,081
Red pine	0	567	296	0	863
White pine	42,364	15,942	4,879	315	63,500
Northern white-cedar	0	0	0	0	0
Hemlock	16,052	7,734	2,705	15	26,506
Other softwoods	0	495	100	0	595
Total softwoods	95,021	28,088	8,124	330	131,563
Sugar maple	4,269	569	72	4	4,914
Soft maples	59,873	12,147	933	16	72,969
Yellow birch	1,686	1,093	156	6	2,941
Paper birch	7,596	3,321	281	15	11,213
Gray birch	11,797	2,057	26	0	13,880
Beech	17,020	4,125	540	5	21,690
White ash	5,085	1,372	92	0	6,549
Black ash	843	98	0	0	941
Aspen	5,836	2,083	61	0	7,980
White oaks	6,723	979	86	0	7,788
Red oaks	23,623	7,208	1,339	24	32,194
Basswood	1,713	68	0	0	1,781
Elm	0	174	18	0	192
Other commercial hardwoods	857	555	32	0	1,444
Noncommercial hardwoods	15,306	539	0	6	15,851
Total hardwoods	162,227	36,388	3,636	76	202,327
Total, all species	257,248	64,476	11,760	406	333,890

Table 40.-- Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	247.4	411.7	23.0	.0	682.1
Tamarack	.0	.0	.0	.0	.0
White spruce	.0	.0	.0	.0	.0
Black spruce	.0	3.9	12.2	.0	16.1
Red spruce	169.1	274.3	83.1	.0	526.5
Red pine	.0	210.3	295.3	.0	505.6
White pine	1,078.0	4,427.7	5,989.6	1,376.8	12,872.1
Northern white-cedar	.0	.0	.0	.0	.0
Hemlock	267.0	1,980.0	2,650.4	48.7	4,946.1
Other softwoods	.0	87.9	48.5	.0	136.4
Total softwoods	1,761.5	7,395.8	9,102.1	1,425.5	19,684.9
Sugar maple	48.7	143.9	76.9	20.7	290.2
Soft maples	1,421.4	2,664.1	847.0	64.4	4,996.9
Yellow birch	51.1	263.7	144.6	8.9	468.3
Paper birch	202.9	850.2	293.2	60.4	1,406.7
Gray birch	427.9	372.8	28.1	.0	828.8
Beech	502.0	1,109.8	560.1	14.7	2,186.6
White ash	98.1	299.4	98.9	.0	496.4
Black ash	3.6	11.7	.0	.0	15.3
Aspen	109.9	504.0	60.4	.0	674.3
White oaks	186.3	252.7	86.2	.0	525.2
Red oaks	811.8	1,977.2	1,339.3	100.8	4,229.1
Basswood	30.2	7.7	.0	.0	37.9
Elm	.0	33.3	10.0	.0	43.3
Other commercial hardwoods	10.0	137.0	38.3	.0	185.3
Noncommercial hardwoods	129.9	95.6	.0	21.2	246.7
Total hardwoods	4,033.8	8,723.1	3,583.0	291.1	16,631.0
Total, all species	5,795.3	16,118.9	12,685.1	1,716.6	36,315.9

Table 41.--Number of trees and net aboveground tree biomass of all live trees on timberland by species and diameter group, Franklin County, Maine, 1982

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	185,686	55,909	3,673	0	245,268
Tamarack	0	37	0	0	37
White spruce	0	2,537	180	0	2,717
Black spruce	6,094	2,510	182	0	8,786
Red spruce	46,838	26,246	3,504	33	76,621
Red pine	0	0	37	0	37
White pine	2,031	2,560	1,641	71	6,303
Northern white-cedar	0	2,011	510	37	2,558
Hemlock	0	4,107	988	0	5,095
Other softwoods	0	70	0	0	70
Total softwoods	240,649	95,987	10,715	141	347,492
Sugar maple	55,990	11,040	1,836	32	68,898
Soft maples	47,318	28,559	3,416	35	79,328
Yellow birch	18,615	10,874	3,422	280	33,191
Paper birch	16,458	27,456	3,048	0	46,962
Gray birch	8,703	1,797	98	0	10,598
Beech	19,194	3,926	653	0	23,773
White ash	8,334	4,499	842	12	13,687
Black ash	4,062	697	84	0	4,843
Aspen	20,689	8,231	1,562	0	30,482
White oaks	0	0	0	0	0
Red oaks	0	0	73	0	73
Basswood	0	239	74	0	313
Elm	0	540	125	0	665
Other commercial hardwoods	0	353	0	0	353
Noncommercial hardwoods	103,335	6,977	111	0	110,423
Total hardwoods	302,698	105,188	15,344	359	423,589
Total, all species	543,347	201,175	26,059	500	771,081

Table 41.-- Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	3,176.6	12,245.6	2,830.8	.0	18,253.0
Tamarack	.0	12.3	.0	.0	12.3
White spruce	.0	683.1	169.2	.0	852.3
Black spruce	372.6	763.4	191.8	.0	1,327.8
Red spruce	1,566.0	6,452.6	3,364.7	136.8	11,520.1
Red pine	.0	.0	59.8	.0	59.8
White pine	28.4	691.1	2,164.8	257.5	3,141.8
Northern white-cedar	.0	253.5	261.1	40.4	555.0
Hemlock	.0	1,049.7	922.0	.0	1,971.7
Other softwoods	.0	8.7	.0	.0	8.7
Total softwoods	5,143.6	22,160.0	9,964.2	434.7	37,702.5
Sugar maple	1,220.1	3,043.1	1,841.4	127.0	6,231.6
Soft maples	785.5	6,650.7	3,167.3	159.7	10,763.2
Yellow birch	386.2	3,375.6	3,932.4	945.8	8,640.0
Paper birch	319.3	8,245.6	3,671.1	.0	12,236.0
Gray birch	289.7	464.3	107.5	.0	861.5
Beech	598.0	1,227.2	517.4	.0	2,342.6
White ash	128.8	1,271.4	782.3	48.7	2,231.2
Black ash	47.3	202.5	86.9	.0	336.7
Aspen	542.4	2,419.5	1,516.7	.0	4,478.6
White oaks	.0	.0	.0	.0	.0
Red oaks	.0	.0	151.7	.0	151.7
Basswood	.0	37.9	44.4	.0	82.3
Elm	.0	111.6	127.2	.0	238.8
Other commercial hardwoods	.0	86.5	.0	.0	86.5
Noncommercial hardwoods	2,403.4	894.4	66.9	.0	3,364.7
Total hardwoods	6,720.7	28,030.3	16,013.2	1,281.2	52,045.4
Total, all species	11,864.3	50,190.3	25,977.4	1,715.9	89,747.9

Table 42.--Number of trees and net aboveground tree biomass of all live trees on timberland by species and diameter group, Hancock County, Maine, 1982

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	258,126	27,886	317	0	286,329
Tamarack	0	868	135	0	1,003
White spruce	1,938	1,246	133	0	3,317
Black spruce	16,041	3,282	101	0	19,424
Red spruce	109,174	31,628	5,736	98	146,636
Red pine	0	206	221	0	427
White pine	5,968	3,104	1,542	208	10,822
Northern white-cedar	33,805	13,466	1,662	0	48,933
Hemlock	9,732	9,132	1,887	137	20,888
Other softwoods	0	0	0	0	0
Total softwoods	434,784	90,818	11,734	443	537,779
Sugar maple	7,828	1,621	349	80	9,878
Soft maples	54,931	21,705	1,986	81	78,703
Yellow birch	18,057	4,623	751	96	23,527
Paper birch	17,748	14,398	474	8	32,628
Gray birch	11,626	1,721	34	0	13,381
Beech	48,675	4,662	293	15	53,645
White ash	5,813	1,214	366	0	7,393
Black ash	2,015	685	194	0	2,894
Aspen	13,789	7,897	946	0	22,632
White oaks	0	0	0	0	0
Red oaks	1,938	698	114	0	2,750
Basswood	0	0	0	0	0
Elm	0	0	0	0	0
Other commercial hardwoods	3,875	333	0	0	4,208
Noncommercial hardwoods	17,796	1,162	0	0	18,958
Total hardwoods	204,091	60,719	5,507	280	270,597
Total, all species	638,875	151,537	17,241	723	808,376

Table 42.-- Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	3,735.6	4,634.8	221.0	.0	8,591.4
Tamarack	.0	212.7	129.9	.0	342.6
White spruce	5.6	261.7	128.2	.0	395.5
Black spruce	483.7	653.7	94.3	.0	1,231.7
Red spruce	2,615.9	8,468.8	5,525.6	342.7	16,953.0
Red pine	.0	107.7	250.3	.0	358.0
White pine	264.8	816.8	1,780.7	1,233.8	4,096.1
Northern white-cedar	629.6	1,837.6	657.3	.0	3,124.5
Hemlock	468.2	2,206.1	1,841.7	446.7	4,962.7
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	8,203.4	19,199.9	10,629.0	2,023.2	40,055.5
Sugar maple	321.0	379.6	431.2	231.1	1,362.9
Soft maples	1,270.4	4,813.8	1,959.9	237.2	8,281.3
Yellow birch	405.9	1,280.3	718.8	190.9	2,595.9
Paper birch	419.3	3,715.2	570.1	80.4	4,785.0
Gray birch	219.5	257.7	27.2	.0	504.4
Beech	1,187.1	984.1	295.6	47.8	2,514.6
White ash	294.4	279.5	379.1	.0	953.0
Black ash	128.3	125.8	183.4	.0	437.5
Aspen	452.8	2,217.6	892.4	.0	3,562.8
White oaks	.0	.0	.0	.0	.0
Red oaks	38.3	181.6	181.9	.0	401.8
Basswood	.0	.0	.0	.0	.0
Elm	.0	.0	.0	.0	.0
Other commercial hardwoods	224.0	56.9	.0	.0	280.9
Noncommercial hardwoods	428.1	147.8	.0	.0	575.9
Total hardwoods	5,389.1	14,439.9	5,639.6	787.4	26,256.0
Total, all species	13,592.5	33,639.8	16,268.6	2,810.6	66,311.5

Table 43.--Number of trees and net aboveground tree biomass of all live trees on timberland by species and diameter group, Kennebec County, Maine, 1982

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	41,178	5,672	57	0	46,907
Tamarack	0	206	175	0	381
White spruce	0	210	0	0	210
Black spruce	0	0	0	0	0
Red spruce	3,318	535	88	0	3,941
Red pine	0	0	17	0	17
White pine	13,162	7,884	3,483	365	24,894
Northern white-cedar	4,087	3,463	121	0	7,671
Hemlock	11,528	5,274	1,834	35	18,671
Other softwoods	0	0	0	0	0
Total softwoods	73,273	23,244	5,775	400	102,692
Sugar maple	7,453	2,181	145	9	9,788
Soft maples	55,980	13,959	1,626	57	71,622
Yellow birch	5,768	994	198	0	6,960
Paper birch	11,506	4,431	328	0	16,265
Gray birch	22,201	4,957	21	0	27,179
Beech	16,443	1,892	293	5	18,633
White ash	13,157	2,185	149	1	15,492
Black ash	829	185	15	0	1,029
Aspen	10,765	8,498	656	0	19,919
White oaks	816	90	0	0	906
Red oaks	12,381	4,141	681	4	17,207
Basswood	4,124	151	68	0	4,343
Elm	1,647	484	101	0	2,232
Other commercial hardwoods	10,695	1,647	186	5	12,533
Noncommercial hardwoods	23,791	901	54	2	24,748
Total hardwoods	197,556	46,696	4,521	83	248,856
Total, all species	270,829	69,940	10,296	483	351,548

Table 43.-- Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	733.8	1,030.5	46.0	.0	1,810.3
Tamarack	.0	60.1	147.1	.0	207.2
White spruce	.0	57.1	.0	.0	57.1
Black spruce	.0	.0	.0	.0	.0
Red spruce	78.7	155.8	92.6	.0	327.1
Red pine	.0	.0	16.7	.0	16.7
White pine	342.7	2,190.4	4,219.6	1,886.7	8,639.4
Northern white-cedar	93.9	424.3	41.6	.0	559.8
Hemlock	294.8	1,348.8	1,836.2	95.0	3,574.8
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	1,543.9	5,267.0	6,399.8	1,981.7	15,192.4
Sugar maple	290.0	580.1	150.4	15.2	1,035.7
Soft maples	1,183.4	3,292.6	1,583.2	281.2	6,340.4
Yellow birch	182.4	335.6	200.6	.0	718.6
Paper birch	212.3	1,302.7	337.5	.0	1,852.5
Gray birch	922.8	845.8	32.5	.0	1,801.1
Beech	438.3	634.4	319.6	15.3	1,407.6
White ash	106.0	557.4	149.9	22.8	836.1
Black ash	4.9	35.1	11.1	.0	51.1
Aspen	228.2	2,127.4	624.1	.0	2,979.7
White oaks	21.1	16.1	.0	.0	37.2
Red oaks	234.1	1,240.9	715.8	20.6	2,211.4
Basswood	49.9	25.1	37.9	.0	112.9
Elm	53.0	112.6	78.6	.0	244.2
Other commercial hardwoods	71.9	406.4	161.1	20.1	659.5
Noncommercial hardwoods	277.8	166.7	51.8	3.5	499.8
Total hardwoods	4,276.1	11,678.9	4,454.1	378.7	20,787.8
Total, all species	5,820.0	16,945.9	10,853.9	2,360.4	35,980.2

Table 44.--Number of trees and net aboveground tree biomass of all live trees on timberland by species and diameter group, Knox County, Maine, 1982

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	44,617	4,496	59	0	49,172
Tamarack	0	102	64	0	166
White spruce	624	102	52	0	778
Black spruce	0	0	0	0	0
Red spruce	12,323	8,583	1,332	4	22,242
Red pine	0	0	0	0	0
White pine	2,556	867	435	50	3,908
Northern white-cedar	0	220	29	0	249
Hemlock	2,536	1,548	313	37	4,434
Other softwoods	0	0	0	0	0
Total softwoods	62,656	15,918	2,284	91	80,949
Sugar maple	0	168	28	0	196
Soft maples	12,077	6,103	1,114	14	19,308
Yellow birch	2,498	480	36	0	3,014
Paper birch	6,114	2,741	251	0	9,106
Gray birch	5,092	116	0	0	5,208
Beech	5,073	540	71	0	5,684
White ash	3,332	335	95	15	3,777
Black ash	0	29	0	0	29
Aspen	8,518	2,198	29	0	10,745
White oaks	0	0	0	0	0
Red oaks	833	1,454	479	58	2,824
Basswood	0	0	0	0	0
Elm	0	29	0	0	29
Other commercial hardwoods	2,518	117	0	0	2,635
Noncommercial hardwoods	9,938	555	29	0	10,522
Total hardwoods	55,993	14,865	2,132	87	73,077
Total, all species	118,649	30,783	4,416	178	154,026

Table 44.-- Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	880.4	837.6	42.0	.0	1,760.0
Tamarack	.0	30.0	45.7	.0	75.7
White spruce	10.1	42.3	66.5	.0	118.9
Black spruce	.0	.0	.0	.0	.0
Red spruce	340.2	2,173.6	1,304.9	19.4	3,838.1
Red pine	.0	.0	.0	.0	.0
White pine	6.8	221.5	588.5	263.9	1,080.7
Northern white-cedar	.0	30.5	10.5	.0	41.0
Hemlock	40.2	388.3	301.1	155.2	884.8
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	1,277.7	3,723.8	2,359.2	438.5	7,799.2
Sugar maple	.0	48.7	18.3	.0	67.0
Soft maples	247.7	1,492.6	1,193.7	46.2	2,980.2
Yellow birch	56.8	109.5	27.5	.0	193.8
Paper birch	274.9	755.2	278.9	.0	1,309.0
Gray birch	70.1	20.5	.0	.0	90.6
Beech	174.2	105.7	56.8	.0	336.7
White ash	12.1	78.1	108.7	64.4	263.3
Black ash	.0	4.8	.0	.0	4.8
Aspen	191.9	427.2	21.4	.0	640.5
White oaks	.0	.0	.0	.0	.0
Red oaks	1.9	357.0	587.6	243.0	1,189.5
Basswood	.0	.0	.0	.0	.0
Elm	.0	6.9	.0	.0	6.9
Other commercial hardwoods	111.8	28.0	.0	.0	139.8
Noncommercial hardwoods	185.6	95.9	42.1	.0	323.6
Total hardwoods	1,327.0	3,530.1	2,335.0	353.6	7,545.7
Total, all species	2,604.7	7,253.9	4,694.2	792.1	15,344.9

Table 45.--Number of trees and net aboveground tree biomass of all live trees on timberland by species and diameter group, Lincoln County, Maine, 1982

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	55,892	3,248	0	0	59,140
Tamarack	826	265	14	0	1,105
White spruce	0	171	14	0	185
Black spruce	0	0	0	0	0
Red spruce	9,889	5,943	1,228	57	17,117
Red pine	0	14	55	0	69
White pine	13,534	5,259	2,051	166	21,010
Northern white-cedar	823	127	0	0	950
Hemlock	826	2,058	860	5	3,749
Other softwoods	0	0	0	0	0
Total softwoods	81,790	17,085	4,222	228	103,325
Sugar maple	4,980	609	106	4	5,699
Soft maples	38,441	6,604	655	20	45,720
Yellow birch	3,558	768	101	10	4,437
Paper birch	7,529	1,322	243	0	9,094
Gray birch	5,118	451	25	0	5,594
Beech	3,473	1,429	51	5	4,958
White ash	823	220	19	0	1,062
Black ash	0	0	0	0	0
Aspen	9,131	590	46	0	9,767
White oaks	0	28	0	0	28
Red oaks	15,200	3,311	1,251	41	19,803
Basswood	0	86	0	0	86
Elm	0	28	0	0	28
Other commercial hardwoods	7,694	1,286	30	0	9,010
Noncommercial hardwoods	14,479	504	52	15	15,050
Total hardwoods	110,426	17,236	2,579	95	130,336
Total, all species	192,216	34,321	6,801	323	233,661

Table 45.-- Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	815.5	518.7	.0	.0	1,334.2
Tamarack	29.3	57.5	12.8	.0	99.6
White spruce	.0	36.6	12.1	.0	48.7
Black spruce	.0	.0	.0	.0	.0
Red spruce	241.0	1,383.0	1,210.8	176.3	3,011.1
Red pine	.0	8.3	66.0	.0	74.3
White pine	375.0	1,465.2	2,561.1	1,025.2	5,426.5
Northern white-cedar	13.6	16.9	.0	.0	30.5
Hemlock	9.7	560.4	845.2	16.8	1,432.1
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	1,484.1	4,046.6	4,708.0	1,218.3	11,457.0
Sugar maple	212.7	169.2	83.9	20.2	486.0
Soft maples	744.7	1,465.5	681.4	55.3	2,946.9
Yellow birch	79.2	200.3	94.4	27.6	401.5
Paper birch	189.7	369.6	285.8	.0	845.1
Gray birch	72.8	70.1	25.1	.0	168.0
Beech	131.3	351.1	39.6	15.2	537.2
White ash	23.1	64.7	15.6	.0	103.4
Black ash	.0	.0	.0	.0	.0
Aspen	170.2	164.0	48.9	.0	383.1
White oaks	.0	8.4	.0	.0	8.4
Red oaks	222.3	890.0	1,251.0	193.2	2,556.5
Basswood	.0	14.8	.0	.0	14.8
Elm	.0	3.2	.0	.0	3.2
Other commercial hardwoods	162.4	323.0	36.8	.0	522.2
Noncommercial hardwoods	181.1	116.2	53.4	21.6	372.3
Total hardwoods	2,189.5	4,210.1	2,615.9	333.1	9,348.6
Total, all species	3,673.6	8,256.7	7,323.9	1,551.4	20,805.6

Table 46.--Number of trees and net aboveground tree biomass of all live trees on timberland by species and diameter group, Oxford County, Maine, 1982

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	144,130	39,019	2,959	0	186,108
Tamarack	4,297	176	0	0	4,473
White spruce	2,149	3,043	304	0	5,496
Black spruce	21,684	705	0	0	22,389
Red spruce	17,335	26,907	2,525	29	46,796
Red pine	0	500	372	0	872
White pine	17,290	16,911	5,121	167	39,489
Northern white-cedar	4,317	2,584	214	0	7,115
Hemlock	10,822	11,054	2,724	37	24,637
Other softwoods	0	80	0	0	80
Total softwoods	222,024	100,979	14,219	233	337,455
Sugar maple	45,380	6,733	1,800	77	53,990
Soft maples	115,441	27,327	3,445	107	146,320
Yellow birch	19,457	10,754	4,503	483	35,197
Paper birch	68,313	20,374	1,617	0	90,304
Gray birch	4,359	3,055	37	0	7,451
Beech	47,547	16,468	1,807	0	65,822
White ash	10,863	2,605	382	46	13,896
Black ash	2,149	183	0	0	2,332
Aspen	4,336	14,065	712	0	19,113
White oaks	0	835	21	0	856
Red oaks	12,951	6,939	1,087	59	21,036
Basswood	0	0	0	0	0
Elm	0	94	0	0	94
Other commercial hardwoods	6,486	1,250	0	0	7,736
Noncommercial hardwoods	87,884	8,649	37	0	96,570
Total hardwoods	425,166	119,331	15,448	772	560,717
Total, all species	647,190	220,310	29,667	1,005	898,172

Table 46.-- Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	2,637.4	8,098.8	2,360.3	.0	13,096.5
Tamarack	209.9	55.5	.0	.0	265.4
White spruce	112.0	771.6	281.8	.0	1,165.4
Black spruce	513.1	150.0	.0	.0	663.1
Red spruce	412.4	6,493.3	2,267.4	95.0	9,268.1
Red pine	.0	144.0	551.4	.0	695.4
White pine	338.0	4,551.6	6,379.6	965.3	12,234.5
Northern white-cedar	106.9	283.2	66.1	.0	456.2
Hemlock	185.5	2,428.2	2,534.7	144.5	5,292.9
Other softwoods	.0	18.2	.0	.0	18.2
Total softwoods	4,515.2	22,994.4	14,441.3	1,204.8	43,155.7
Sugar maple	770.4	1,992.3	1,945.0	297.7	5,005.4
Soft maples	2,012.9	6,563.9	3,019.2	386.6	11,982.6
Yellow birch	593.2	3,309.6	4,871.1	1,782.5	10,556.4
Paper birch	1,895.7	6,011.8	2,031.2	.0	9,938.7
Gray birch	281.2	467.8	27.6	.0	776.6
Beech	760.0	5,010.1	2,015.2	.0	7,785.3
White ash	329.1	638.6	505.6	167.8	1,641.1
Black ash	25.1	32.8	.0	.0	57.9
Aspen	254.5	3,611.3	594.8	.0	4,460.6
White oaks	.0	125.1	21.4	.0	146.5
Red oaks	173.3	1,638.6	1,036.5	236.2	3,084.6
Basswood	.0	.0	.0	.0	.0
Elm	.0	37.0	.0	.0	37.0
Other commercial hardwoods	42.4	250.5	.0	.0	292.9
Noncommercial hardwoods	1,587.0	909.7	29.1	.0	2,525.8
Total hardwoods	8,724.8	30,599.1	16,096.7	2,870.8	58,291.4
Total, all species	13,240.0	53,593.5	30,538.0	4,075.6	101,447.1

Table 47.--Number of trees and net aboveground tree biomass of all live trees on timberland by species and diameter group, Penobscot County, Maine, 1982

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	316,959	63,506	747	0	381,212
Tamarack	5,807	3,678	416	0	9,901
White spruce	13,568	5,361	480	0	19,409
Black spruce	11,615	2,861	114	0	14,590
Red spruce	69,865	53,151	8,274	26	131,316
Red pine	1,936	756	746	15	3,453
White pine	21,429	6,065	3,476	475	31,445
Northern white-cedar	77,979	66,287	6,647	33	150,946
Hemlock	51,756	37,750	7,824	147	97,477
Other softwoods	0	0	0	0	0
Total softwoods	570,914	239,415	28,724	696	839,749
Sugar maple	38,698	11,842	3,219	100	53,859
Soft maples	101,129	37,383	4,949	90	143,551
Yellow birch	11,674	10,259	1,907	81	23,921
Paper birch	38,774	14,374	1,495	22	54,665
Gray birch	33,037	7,358	0	0	40,395
Beech	113,986	25,609	3,666	31	143,292
White ash	0	3,926	950	27	4,903
Black ash	7,833	5,829	653	0	14,315
Aspen	17,334	20,746	4,693	12	42,785
White oaks	0	652	0	0	652
Red oaks	1,953	402	293	0	2,648
Basswood	0	468	313	0	781
Elm	3,907	1,220	397	111	5,635
Other commercial hardwoods	1,954	1,065	99	0	3,118
Noncommercial hardwoods	85,419	3,334	33	0	88,786
Total hardwoods	455,698	144,467	22,667	474	623,306
Total, all species	1,026,612	383,882	51,391	1,170	1,463,055

Table 47.-- Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	4,689.6	11,715.2	526.8	.0	16,931.6
Tamarack	344.1	731.1	271.5	.0	1,346.7
White spruce	588.3	1,111.1	594.3	.0	2,293.7
Black spruce	203.4	585.2	92.1	.0	880.7
Red spruce	2,058.3	14,203.5	7,239.5	86.8	23,588.1
Red pine	18.6	300.0	875.5	22.4	1,216.5
White pine	608.3	1,651.4	4,640.2	2,728.0	9,627.9
Northern white-cedar	2,296.1	8,696.6	2,399.0	6.9	13,398.6
Hemlock	1,615.5	9,050.9	7,099.8	468.3	18,234.5
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	12,422.2	48,045.0	23,738.7	3,312.4	87,518.3
Sugar maple	721.4	3,529.3	3,754.2	345.0	8,349.9
Soft maples	2,633.0	8,843.0	4,530.5	331.8	16,338.3
Yellow birch	158.9	2,818.8	1,868.6	252.9	5,099.2
Paper birch	1,192.8	4,605.5	1,786.3	141.6	7,726.2
Gray birch	1,431.0	1,148.2	.0	.0	2,579.2
Beech	2,878.5	7,193.6	3,224.8	9.9	13,306.8
White ash	.0	1,078.5	842.5	90.7	2,011.7
Black ash	318.1	1,238.6	598.7	.0	2,155.4
Aspen	372.3	6,378.2	4,442.5	54.4	11,247.4
White oaks	.0	113.6	.0	.0	113.6
Red oaks	11.6	81.2	363.3	.0	456.1
Basswood	.0	66.9	159.3	.0	226.2
Elm	46.2	234.7	556.3	626.4	1,463.6
Other commercial hardwoods	22.8	208.9	86.8	.0	318.5
Noncommercial hardwoods	1,175.8	571.2	31.2	.0	1,778.2
Total hardwoods	10,962.4	38,110.2	22,245.0	1,852.7	73,170.3
Total, all species	23,384.6	86,155.2	45,983.7	5,165.1	160,688.6

Table 48.--Number of trees and net aboveground tree biomass of all live trees on timberland by species and diameter group, Piscataquis County, Maine, 1982

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	367,135	125,364	4,702	0	497,201
Tamarack	8,513	2,665	243	0	11,421
White spruce	34,872	11,440	1,142	0	47,454
Black spruce	10,693	9,629	1,413	0	21,735
Red spruce	184,567	131,132	17,363	157	333,219
Red pine	0	0	0	0	0
White pine	6,408	5,759	2,203	657	15,027
Northern white-cedar	36,730	31,001	11,465	291	79,487
Hemlock	10,656	8,020	2,117	167	20,960
Other softwoods	0	0	0	0	0
Total softwoods	659,574	325,010	40,648	1,272	1,026,504
Sugar maple	23,570	13,674	6,192	535	43,971
Soft maples	55,973	32,687	6,147	158	94,965
Yellow birch	62,074	12,146	4,963	347	79,530
Paper birch	72,502	16,370	1,564	13	90,449
Gray birch	2,128	674	73	0	2,875
Beech	97,375	18,297	4,760	36	120,468
White ash	8,551	2,254	375	0	11,180
Black ash	8,566	3,801	339	0	12,706
Aspen	16,841	9,961	2,963	47	29,812
White oaks	0	0	0	0	0
Red oaks	0	0	96	37	133
Basswood	0	331	132	0	463
Elm	2,127	202	0	0	2,329
Other commercial hardwoods	6,288	143	60	0	6,491
Noncommercial hardwoods	82,145	7,259	110	0	89,514
Total hardwoods	438,140	117,799	27,774	1,173	584,886
Total, all species	1,097,714	442,809	68,422	2,445	1,611,390

Table 48.-- Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	8,434.4	26,230.6	3,427.4	.0	38,092.4
Tamarack	332.7	488.2	159.4	.0	980.3
White spruce	1,073.7	2,754.8	1,065.3	.0	4,893.8
Black spruce	291.7	2,235.0	1,294.4	.0	3,821.1
Red spruce	6,044.9	31,546.6	17,397.2	450.3	55,439.0
Red pine	.0	.0	.0	.0	.0
White pine	38.1	1,507.1	2,955.1	3,504.5	8,004.8
Northern white-cedar	1,177.1	4,634.5	4,764.3	254.6	10,830.5
Hemlock	334.6	2,037.8	2,111.9	342.3	4,826.6
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	17,727.2	71,434.6	33,175.0	4,551.7	126,888.5
Sugar maple	430.0	4,066.2	7,683.8	1,700.1	13,880.1
Soft maples	863.4	8,202.8	5,806.6	537.0	15,409.8
Yellow birch	1,449.5	3,854.7	5,474.5	944.6	11,723.3
Paper birch	1,069.3	4,446.1	1,923.5	63.7	7,502.6
Gray birch	191.8	151.2	71.2	.0	414.2
Beech	1,570.4	5,609.8	4,452.8	24.7	11,657.7
White ash	33.6	672.4	418.7	.0	1,124.7
Black ash	162.1	895.9	351.8	.0	1,409.8
Aspen	714.4	3,325.6	3,310.7	149.0	7,499.7
White oaks	.0	.0	.0	.0	.0
Red oaks	.0	.0	189.3	158.0	347.3
Basswood	.0	54.7	55.2	.0	109.9
Elm	7.6	77.2	.0	.0	84.8
Other commercial hardwoods	15.8	27.1	37.1	.0	80.0
Noncommercial hardwoods	932.6	761.7	34.5	.0	1,728.8
Total hardwoods	7,440.5	32,145.4	29,809.7	3,577.1	72,972.7
Total, all species	25,167.7	103,580.0	62,984.7	8,128.8	199,861.2

Table 49.--Number of trees and net aboveground tree biomass of all live trees on timberland by species and diameter group, Sagadahoc County, Maine, 1982

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	13,031	1,132	0	0	14,163
Tamarack	1,647	227	49	0	1,923
White spruce	0	0	0	0	0
Black spruce	0	0	0	0	0
Red spruce	824	348	100	0	1,272
Red pine	0	0	0	0	0
White pine	3,443	3,107	1,262	88	7,900
Northern white-cedar	0	878	36	0	914
Hemlock	13,400	945	303	5	14,653
Other softwoods	0	0	0	0	0
Total softwoods	32,345	6,637	1,750	93	40,825
Sugar maple	0	0	55	2	57
Soft maples	7,376	4,556	513	14	12,459
Yellow birch	0	28	0	0	28
Paper birch	5,913	1,228	28	0	7,169
Gray birch	0	655	0	0	655
Beech	0	259	44	0	303
White ash	824	1,025	28	0	1,877
Black ash	0	0	0	0	0
Aspen	0	671	14	0	685
White oaks	898	55	0	0	953
Red oaks	6,737	1,344	389	8	8,478
Basswood	0	85	0	0	85
Elm	0	28	0	0	28
Other commercial hardwoods	0	106	18	0	124
Noncommercial hardwoods	8,219	410	0	0	8,629
Total hardwoods	29,967	10,450	1,089	24	41,530
Total, all species	62,312	17,087	2,839	117	82,355

Table 49.-- Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	154.8	205.0	.0	.0	359.8
Tamarack	55.5	30.9	33.5	.0	119.9
White spruce	.0	.0	.0	.0	.0
Black spruce	.0	.0	.0	.0	.0
Red spruce	31.0	118.8	102.8	.0	252.6
Red pine	.0	.0	.0	.0	.0
White pine	26.8	1,002.6	1,519.6	474.4	3,023.4
Northern white-cedar	.0	113.3	11.6	.0	124.9
Hemlock	137.3	233.7	265.3	17.0	653.3
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	405.4	1,704.3	1,932.8	491.4	4,533.9
Sugar maple	.0	.0	93.3	15.3	108.6
Soft maples	105.6	1,122.6	491.4	47.5	1,767.1
Yellow birch	.0	3.6	.0	.0	3.6
Paper birch	134.6	316.3	31.2	.0	482.1
Gray birch	.0	127.4	.0	.0	127.4
Beech	.0	77.0	54.9	.0	131.9
White ash	17.9	227.2	26.2	.0	271.3
Black ash	.0	.0	.0	.0	.0
Aspen	.0	185.6	9.3	.0	194.9
White oaks	27.4	9.8	.0	.0	37.2
Red oaks	224.4	307.0	480.7	42.6	1,054.7
Basswood	.0	9.8	.0	.0	9.8
Elm	.0	6.9	.0	.0	6.9
Other commercial hardwoods	.0	26.8	14.3	.0	41.1
Noncommercial hardwoods	45.1	78.8	.0	.0	123.9
Total hardwoods	555.0	2,498.8	1,201.3	105.4	4,360.5
Total, all species	960.4	4,203.1	3,134.1	596.8	8,894.4

Table 50.--Number of trees and net aboveground tree biomass of all live trees on timberland by species and diameter group, Somerset County, Maine, 1982

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	442,092	143,855	6,189	16	592,152
Tamarack	2,102	495	72	0	2,669
White spruce	25,192	11,617	700	0	37,509
Black spruce	16,818	12,581	213	0	29,612
Red spruce	143,442	95,105	11,384	104	250,035
Red pine	0	1,504	332	0	1,836
White pine	12,594	6,735	2,605	187	22,121
Northern white-cedar	27,324	25,429	8,971	116	61,840
Hemlock	8,403	10,649	2,420	157	21,629
Other softwoods	0	0	0	0	0
Total softwoods	677,967	307,970	32,886	580	1,019,403
Sugar maple	58,999	22,933	9,004	733	91,669
Soft maples	147,082	39,027	5,286	95	191,490
Yellow birch	86,271	17,756	6,491	599	111,117
Paper birch	54,783	33,325	3,171	11	91,290
Gray birch	6,302	4,679	110	0	11,091
Beech	56,783	17,779	3,922	79	78,563
White ash	8,409	4,222	487	0	13,118
Black ash	18,916	3,186	381	0	22,483
Aspen	10,507	16,694	2,592	0	29,793
White oaks	0	0	0	0	0
Red oaks	0	750	42	48	840
Basswood	2,100	181	108	0	2,389
Elm	4,200	540	109	0	4,849
Other commercial hardwoods	4,198	793	165	36	5,192
Noncommercial hardwoods	162,087	8,588	137	0	170,812
Total hardwoods	620,637	170,453	32,005	1,601	824,696
Total, all species	1,298,604	478,423	64,891	2,181	1,844,099

Table 50.-- Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	8,903.6	31,452.0	4,976.6	42.6	45,374.8
Tamarack	12.9	106.3	66.4	.0	185.6
White spruce	913.4	2,472.0	644.6	.0	4,030.0
Black spruce	770.4	2,503.6	199.3	.0	3,473.3
Red spruce	4,341.6	23,507.3	10,674.3	315.1	38,838.3
Red pine	.0	601.3	348.3	.0	949.6
White pine	343.9	1,884.3	3,411.4	887.3	6,526.9
Northern white-cedar	404.1	4,096.2	3,737.3	127.8	8,365.4
Hemlock	303.5	2,539.4	2,436.0	530.4	5,809.3
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	15,993.4	69,162.4	26,494.2	1,903.2	113,553.2
Sugar maple	1,418.4	6,876.9	10,832.3	2,712.9	21,840.5
Soft maples	2,861.4	9,763.9	5,655.3	231.0	18,511.6
Yellow birch	1,442.2	5,228.4	7,738.2	2,080.8	16,489.6
Paper birch	977.3	9,142.8	3,624.5	75.0	13,819.6
Gray birch	354.2	820.8	90.4	.0	1,265.4
Beech	1,273.0	4,753.7	3,996.6	242.7	10,266.0
White ash	277.1	1,214.9	427.9	.0	1,919.9
Black ash	601.1	724.8	262.9	.0	1,588.8
Aspen	133.9	4,246.4	2,852.5	.0	7,232.8
White oaks	.0	.0	.0	.0	.0
Red oaks	.0	199.9	41.0	160.2	401.1
Basswood	12.3	27.1	54.5	.0	93.9
Elm	187.1	125.7	126.4	.0	439.2
Other commercial hardwoods	256.8	152.7	121.2	62.5	593.2
Noncommercial hardwoods	2,137.7	1,081.1	114.1	.0	3,332.9
Total hardwoods	11,932.5	44,359.1	35,937.8	5,565.1	97,794.5
Total, all species	27,925.9	113,521.5	62,432.0	7,468.3	211,347.7

Table 51.--Number of trees and net aboveground tree biomass of all live trees on timberland by species and diameter group, Waldo County, Maine, 1982

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	107,944	11,344	125	0	119,413
Tamarack	0	945	255	0	1,200
White spruce	1,624	1,608	216	0	3,448
Black spruce	0	168	0	0	168
Red spruce	1,676	3,724	450	0	5,850
Red pine	0	0	0	0	0
White pine	1,675	2,868	1,092	77	5,712
Northern white-cedar	16,533	6,008	351	0	22,892
Hemlock	9,976	3,679	908	0	14,563
Other softwoods	0	0	0	0	0
Total softwoods	139,428	30,344	3,397	77	173,246
Sugar maple	9,096	2,933	193	14	12,236
Soft maples	38,671	11,403	1,246	21	51,341
Yellow birch	8,207	1,281	231	0	9,719
Paper birch	15,539	6,430	245	4	22,218
Gray birch	12,279	2,202	0	0	14,481
Beech	22,083	3,620	368	15	26,086
White ash	3,247	1,393	176	0	4,816
Black ash	0	413	14	0	427
Aspen	12,253	5,647	683	0	18,583
White oaks	0	28	14	0	42
Red oaks	6,559	2,128	404	0	9,091
Basswood	0	287	84	4	375
Elm	825	141	14	0	980
Other commercial hardwoods	3,286	658	0	0	3,944
Noncommercial hardwoods	12,395	986	14	0	13,395
Total hardwoods	144,440	39,550	3,686	58	187,734
Total, all species	283,868	69,894	7,083	135	360,980

Table 51.-- Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	2,196.7	1,930.9	99.4	.0	4,227.0
Tamarack	.0	189.2	206.6	.0	395.8
White spruce	104.2	369.0	195.7	.0	668.9
Black spruce	.0	43.4	.0	.0	43.4
Red spruce	21.1	912.0	446.4	.0	1,379.5
Red pine	.0	.0	.0	.0	.0
White pine	61.7	767.0	1,287.6	361.2	2,477.5
Northern white-cedar	339.9	818.7	119.5	.0	1,278.1
Hemlock	362.0	1,000.0	857.5	.0	2,219.5
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	3,085.6	6,030.2	3,212.7	361.2	12,689.7
Sugar maple	207.9	749.9	206.5	61.4	1,225.7
Soft maples	700.4	2,817.4	1,240.4	90.7	4,848.9
Yellow birch	262.4	346.1	224.5	.0	833.0
Paper birch	653.5	1,592.6	307.7	27.2	2,581.0
Gray birch	477.0	334.7	.0	.0	811.7
Beech	611.0	956.3	307.3	34.7	1,909.3
White ash	69.6	395.7	206.1	.0	671.4
Black ash	.0	67.0	19.2	.0	86.2
Aspen	299.2	1,432.9	623.5	.0	2,355.6
White oaks	.0	10.9	26.5	.0	37.4
Red oaks	231.6	488.4	456.2	.0	1,176.2
Basswood	.0	40.8	32.0	2.5	75.3
Elm	48.4	52.8	12.5	.0	113.7
Other commercial hardwoods	77.6	155.7	.0	.0	233.3
Noncommercial hardwoods	154.8	164.4	11.9	.0	331.1
Total hardwoods	3,793.4	9,605.6	3,674.3	216.5	17,289.8
Total, all species	6,879.0	15,635.8	6,887.0	577.7	29,979.5

Table 52.--Number of trees and net aboveground tree biomass of all live trees on timberland by species and diameter group, Washington County, Maine, 1982

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	405,095	56,244	537	0	461,876
Tamarack	6,710	1,818	385	12	8,925
White spruce	10,997	10,204	262	0	21,463
Black spruce	40,215	7,823	138	0	48,176
Red spruce	118,622	55,851	7,394	49	181,916
Red pine	0	114	190	0	304
White pine	2,194	2,151	1,677	197	6,219
Northern white-cedar	59,321	26,046	3,163	13	88,543
Hemlock	48,400	20,071	3,643	9	72,123
Other softwoods	0	0	0	0	0
Total softwoods	691,554	180,322	17,389	280	889,545
Sugar maple	17,614	4,033	625	192	22,464
Soft maples	136,219	28,242	3,985	15	168,461
Yellow birch	19,746	5,309	1,291	11	26,357
Paper birch	44,131	18,398	1,312	0	63,841
Gray birch	53,661	2,205	0	0	55,866
Beech	90,320	7,273	1,214	0	98,807
White ash	0	853	197	0	1,050
Black ash	13,194	4,189	188	0	17,571
Aspen	65,348	12,209	2,538	15	80,110
White oaks	0	0	0	0	0
Red oaks	2,193	1,132	162	0	3,487
Basswood	0	0	0	0	0
Elm	0	0	0	0	0
Other commercial hardwoods	2,298	0	0	0	2,298
Noncommercial hardwoods	28,757	853	0	0	29,610
Total hardwoods	473,481	84,696	11,512	233	569,922
Total, all species	1,165,035	265,018	28,901	513	1,459,467

Table 52.-- Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	6,382.8	9,807.7	398.6	.0	16,589.1
Tamarack	180.1	364.1	262.8	31.4	838.4
White spruce	464.7	2,095.9	244.9	.0	2,805.5
Black spruce	1,501.1	1,286.7	103.4	.0	2,891.2
Red spruce	3,295.1	13,309.3	6,784.7	206.7	23,595.8
Red pine	.0	35.5	223.2	.0	258.7
White pine	134.8	561.4	2,044.0	820.7	3,560.9
Northern white-cedar	1,668.6	3,401.8	1,149.9	9.2	6,229.5
Hemlock	1,148.8	4,835.6	3,191.7	49.5	9,225.6
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	14,776.0	35,698.0	14,403.2	1,117.5	65,994.7
Sugar maple	565.4	958.5	648.1	596.4	2,768.4
Soft maples	3,188.5	6,270.4	3,599.1	50.3	13,108.3
Yellow birch	356.8	1,476.1	1,143.9	52.0	3,028.8
Paper birch	1,299.2	4,523.7	1,408.3	.0	7,231.2
Gray birch	1,107.6	305.3	.0	.0	1,412.9
Beech	2,400.6	1,622.6	1,190.2	.0	5,213.4
White ash	.0	262.6	132.8	.0	395.4
Black ash	575.7	899.7	156.8	.0	1,632.2
Aspen	1,882.1	2,529.8	2,793.5	31.6	7,237.0
White oaks	.0	.0	.0	.0	.0
Red oaks	89.8	374.9	122.0	.0	586.7
Basswood	.0	.0	.0	.0	.0
Elm	.0	.0	.0	.0	.0
Other commercial hardwoods	11.7	.0	.0	.0	11.7
Noncommercial hardwoods	686.8	124.3	.0	.0	811.1
Total hardwoods	12,164.2	19,347.9	11,194.7	730.3	43,437.1
Total, all species	26,940.2	55,045.9	25,597.9	1,847.8	109,431.8

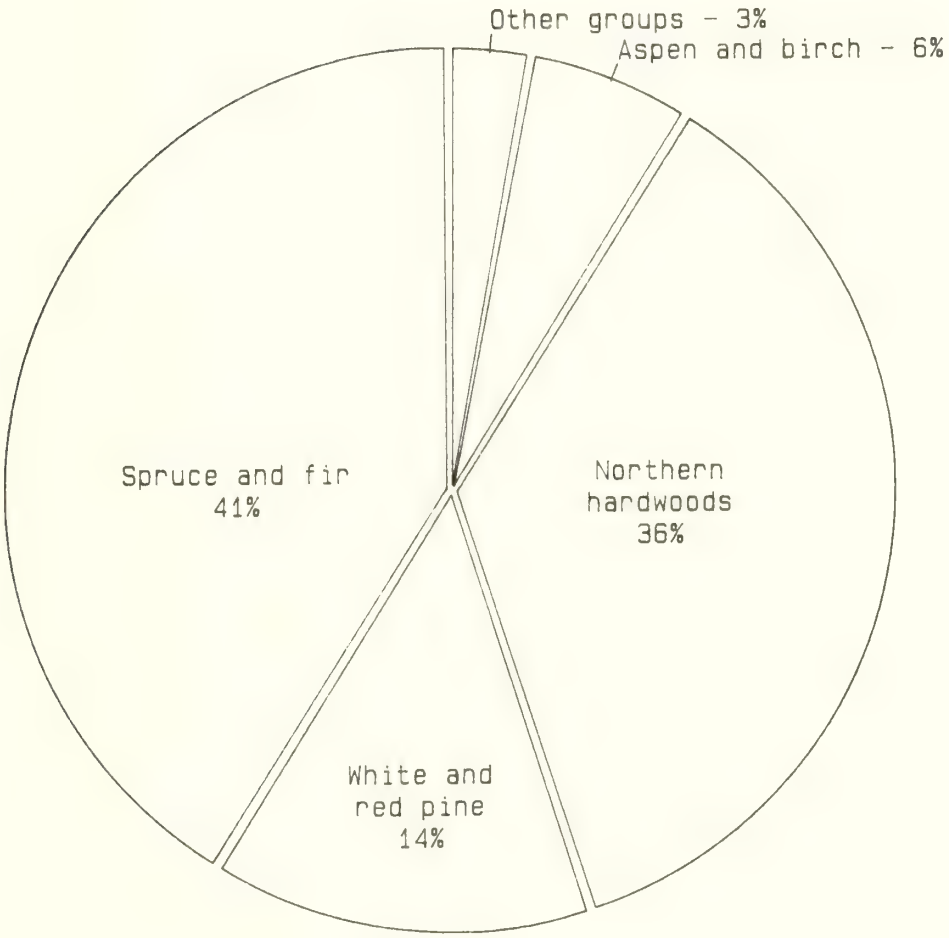
Table 53.--Number of trees and net aboveground tree biomass of all live trees on timberland by species and diameter group, York County, Maine, 1982

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	25,157	1,381	14	0	26,552
Tamarack	0	39	35	0	74
White spruce	0	112	0	0	112
Black spruce	0	379	0	0	379
Red spruce	4,211	1,134	205	0	5,550
Red pine	1,685	288	54	0	2,027
White pine	38,307	14,643	6,502	519	59,971
Northern white-cedar	0	0	0	0	0
Hemlock	31,891	9,170	3,800	134	44,995
Other softwoods	840	482	289	0	1,611
Total softwoods	102,091	27,628	10,899	653	141,271
Sugar maple	19,421	1,493	189	10	21,113
Soft maples	120,180	20,564	1,595	42	142,381
Yellow birch	6,695	1,545	116	0	8,356
Paper birch	31,899	4,940	246	0	37,085
Gray birch	59,327	687	0	0	60,014
Beech	15,193	1,303	195	25	16,716
White ash	16,035	1,150	106	0	17,291
Black ash	1,695	192	0	0	1,887
Aspen	14,530	3,701	140	6	18,377
White oaks	8,439	1,510	193	41	10,183
Red oaks	20,985	10,223	1,836	50	33,094
Basswood	2,543	0	13	0	2,556
Elm	0	54	15	0	69
Other commercial hardwoods	16,065	1,228	131	0	17,424
Noncommercial hardwoods	20,208	106	0	0	20,314
Total hardwoods	353,215	48,696	4,775	174	406,860
Total, all species	455,306	76,324	15,674	827	548,131

Table 53.-- Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	364.0	281.3	8.6	.0	653.9
Tamarack	.0	18.5	19.2	.0	37.7
White spruce	.0	25.8	.0	.0	25.8
Black spruce	.0	58.2	.0	.0	58.2
Red spruce	138.6	289.7	165.6	.0	593.9
Red pine	111.8	101.3	50.8	.0	263.9
White pine	985.1	3,795.7	8,576.0	2,246.0	15,602.8
Northern white-cedar	.0	.0	.0	.0	.0
Hemlock	532.5	2,356.4	3,767.1	441.6	7,097.6
Other softwoods	28.5	78.6	125.0	.0	232.1
Total softwoods	2,160.5	7,005.5	12,712.3	2,687.6	24,565.9
Sugar maple	311.7	371.4	200.7	26.3	910.1
Soft maples	2,219.1	4,556.2	1,443.5	89.1	8,307.9
Yellow birch	46.5	406.2	90.1	.0	542.8
Paper birch	765.4	1,288.4	318.3	.0	2,372.1
Gray birch	1,528.2	97.1	.0	.0	1,625.3
Beech	265.7	408.0	186.6	59.4	919.7
White ash	404.9	235.0	144.8	.0	784.7
Black ash	16.0	39.7	.0	.0	55.7
Aspen	306.4	866.6	139.2	21.9	1,334.1
White oaks	333.3	304.5	289.5	183.4	1,110.7
Red oaks	574.9	2,385.7	2,102.4	213.7	5,276.7
Basswood	56.7	.0	6.0	.0	62.7
Elm	.0	14.0	4.5	.0	18.5
Other commercial hardwoods	262.5	218.5	126.5	.0	607.5
Noncommercial hardwoods	222.2	26.6	.0	.0	248.8
Total hardwoods	7,313.5	11,217.9	5,052.1	593.8	24,177.3
Total, all species	9,474.0	18,223.4	17,764.4	3,281.4	48,743.2

ABOVEGROUND BIOMASS OF CULL TREES AND SALVABLE DEAD TREES



Distribution of Biomass
by Forest-type Group

Table 54.--Net aboveground tree biomass of cull and salvable dead trees on timberland by forest-type group and stand-size class, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	23,463.6	5,699.8	529.2*	.0	29,692.6	8
Spruce/fir	51,966.3	29,789.3	3,430.6	69.0**	85,255.2	4
Loblolly/shortleaf	6.4**	.0	2.0**	.0	8.4	80
Oak/pine	77.2**	107.0*	.0	.0	184.2	41
Oak/hickory	1,595.1	1,240.2	106.7*	.0	2,942.0	17
Elm/ash/red maple	821.6*	2,396.1*	91.5**	.0	3,309.2	24
Northern hardwoods	49,478.9	24,154.6	2,474.2	.0	76,107.7	5
Aspen/birch	2,959.1*	8,792.6	871.9*	.0	12,623.6	11
Total, all groups	130,368.2	72,179.6	7,506.1	69.0	210,122.9	1.9
Sampling error (percent)	3	4	10	67	1.9	
	Green tons per acre[b]					
White/red pine	15.3	10.2	5.2	.0	13.5	
Spruce/fir	12.7	10.4	4.3	3.0	11.0	
Loblolly/shortleaf	1.6	.0	.5	.0	1.0	
Oak/pine	5.0	5.2	.0	.0	5.1	
Oak/hickory	15.1	8.1	2.2	.0	9.6	
Elm/ash/red maple	17.9	16.9	1.8	.0	13.9	
Northern hardwoods	19.3	12.7	4.6	.0	15.2	
Aspen/birch	17.6	9.2	2.3	.0	8.4	
All groups	15.3	10.9	3.9	2.1	12.3	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each table cell by the estimate of timberland area for that cell.

Table 55.--Net aboveground tree biomass of cull and salvable dead trees on timberland by forest-type group and stand-size class, Androscoggin County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	409.4*	168.1*	.0	.0	577.5	27
Spruce/fir	43.7**	69.4**	12.4**	.0	125.5	64
Loblolly/shortleaf	.0	.0	.0	.0	.0	0
Oak/pine	.0	22.7**	.0	.0	22.7	100
Oak/hickory	.0	77.8**	.0	.0	77.8	77
Elm/ash/red maple	.0	64.7**	.0	.0	64.7	100
Northern hardwoods	426.4**	51.6*	61.4**	.0	539.4	42
Aspen/birch	1.6**	107.3**	7.5**	.0	116.4	52
Total, all groups	881.1	561.6	81.3	.0	1,524.0	16.8
Sampling error (percent)	30	23	50	0	16.8	
	Green tons per acre[b]					
White/red pine	7.3	4.9	.0	.0	6.4	
Spruce/fir	10.2	16.1	2.9	.0	9.7	
Loblolly/shortleaf	.0	.0	.0	.0	.0	
Oak/pine	.0	5.3	.0	.0	5.3	
Oak/hickory	.0	6.1	.0	.0	6.1	
Elm/ash/red maple	.0	15.0	.0	.0	15.0	
Northern hardwoods	19.8	3.0	3.0	.0	9.1	
Aspen/birch	.4	5.0	1.7	.0	3.9	
All groups	10.2	5.7	2.8	.0	7.1	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each table cell by the estimate of timberland area for that cell.

Table 56.--Net aboveground tree biomass of cull and salvable dead trees on timberland by forest-type group and stand-size class, Aroostook County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	703.0**	.0	.0	.0	703.0	66
Spruce/fir	17,209.8	5,979.8	675.2*	4.3**	23,869.1	6
Loblolly/shortleaf	.0	.0	.0	.0	.0	0
Oak/pine	.0	.0	.0	.0	.0	0
Oak/hickory	.0	.0	.0	.0	.0	0
Elm/ash/red maple	202.0**	621.2**	63.5**	.0	886.7	45
Northern hardwoods	14,644.9	3,684.6	578.6*	.0	18,908.1	10
Aspen/birch	999.5**	1,987.4*	57.9**	.0	3,044.8	25
Total, all groups	33,759.2	12,273.0	1,375.2	4.3	47,411.7	3.9
Sampling error (percent)	6	10	23	100	3.9	
	Green tons per acre[b]					
White/red pine	20.8	.0	.0	.0	16.6	
Spruce/fir	12.9	8.3	4.0	.5	10.7	
Loblolly/shortleaf	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	.0	.0	.0	.0	
Elm/ash/red maple	23.0	18.5	3.7	.0	14.9	
Northern hardwoods	21.1	16.3	5.2	.0	18.3	
Aspen/birch	23.6	7.6	.6	.0	7.7	
All groups	16.0	9.8	3.5	.5	12.6	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each table cell by the estimate of timberland area for that cell.

Table 57.--Net aboveground tree biomass of cull and salvable dead trees on timberland by forest-type group and stand-size class, Cumberland County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
hite/red pine	3,121.4	533.1*	147.8*	.0	3,802.3	17
pruce/fir	24.6**	65.1**	.0	27.4**	117.1	64
oblolly/shortleaf	.0	.0	.0	.0	.0	0
ak/pine	.0	39.8**	.0	.0	39.8	87
ak/hickory	15.8**	237.2*	.0	.0	253.0	47
lm/ash/red maple	.0	23.4**	10.8**	.0	34.2	75
orthern hardwoods	210.2*	495.9*	20.3**	.0	726.4	28
spen/birch	.0	40.2**	.0	.0	40.2	100
Total, all groups	3,372.0	1,434.7	178.9	27.4	5,013.0	12.2
Sampling error (percent)	18	22	38	100	12.2	
	Green tons per acre[b]					
hite/red pine	192.4	10.5	7.1	.0	14.4	
pruce/fir	6.2	15.5	.0	5.5	8.9	
oblolly/shortleaf	.0	.0	.0	.0	.0	
ak/pine	.0	4.8	.0	.0	4.8	
ak/hickory	3.7	11.3	.0	.0	10.0	
lm/ash/red maple	.0	5.6	2.7	.0	4.2	
orthern hardwoods	10.0	9.9	2.4	.0	9.1	
spen/birch	.0	4.9	.0	.0	4.9	
All groups	15.2	9.8	5.4	5.5	12.3	

Sampling errors are expressed as a percent of the total and are included only for row and column otals. A single asterisk (*) by a cell value indicates that the estimate has an associated ampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has n associated sampling error greater than 50 percent, and therefore is not significantly different rom zero.

Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each able cell by the estimate of timberland area for that cell.

Table 58.--Net aboveground tree biomass of cull and salvable dead trees on timberland by forest-type group and stand-size class, Franklin County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampli error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percer
White/red pine	1,080.2**	.0	.0	.0	1,080.2	54
Spruce/fir	1,902.3*	2,335.7	192.9**	.0	4,430.9	17
Loblolly/shortleaf	.0	.0	.0	.0	.0	0
Oak/pine	.0	.0	.0	.0	.0	0
Oak/hickory	.0	.0	.0	.0	.0	0
Elm/ash/red maple	.0	.0	.0	.0	.0	0
Northern hardwoods	2,054.0*	2,528.2	186.4**	.0	4,768.6	17
Aspen/birch	327.7**	1,280.8**	63.2**	.0	1,671.7	39
Total, all groups	5,364.2	6,144.7	442.5	.0	11,951.4	7.8
Sampling error (percent)	18	14	41	0	7.8	
	Green tons per acre[b]					
White/red pine	20.7	.0	.0	.0	20.7	
Spruce/fir	13.1	11.5	4.8	.0	11.4	
Loblolly/shortleaf	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	.0	.0	.0	.0	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	11.2	9.9	10.0	.0	10.4	
Aspen/birch	31.2	15.1	3.3	.0	14.6	
All groups	13.7	11.3	5.7	.0	11.8	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each table cell by the estimate of timberland area for that cell.

Table 59.--Net aboveground tree biomass of cull and salvable dead trees on timberland by forest-type group and stand-size class, Hancock County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	1,021.6*	144.7**	56.3**	.0	1,222.6	33
Spruce/fir	2,702.3	1,982.6*	23.1**	37.3**	4,745.3	16
Loblolly/shortleaf	.0	.0	.0	.0	.0	0
Oak/pine	.0	.0	.0	.0	.0	0
Oak/hickory	85.0**	.0	34.0**	.0	119.0	77
Elm/ash/red maple	.0	88.9**	.0	.0	88.9	100
Northern hardwoods	2,315.7*	1,132.7*	75.2**	.0	3,523.6	29
Aspen/birch	.0	745.5**	49.6**	.0	795.1	50
Total, all groups	6,124.6	4,094.4	238.2	37.3	10,494.5	9.6
Sampling error (percent)	17	19	36	100	9.6	
	Green tons per acre[b]					
White/red pine	13.7	15.7	6.1	.0	13.2	
Spruce/fir	14.3	11.9	.6	3.8	11.8	
Loblolly/shortleaf	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	9.2	.0	3.5	.0	6.3	
Elm/ash/red maple	.0	9.4	.0	.0	9.4	
Northern hardwoods	31.0	17.4	1.6	.0	18.9	
Aspen/birch	.0	13.2	5.1	.0	12.0	
All groups	17.7	13.3	2.1	3.8	13.5	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each salvable cell by the estimate of timberland area for that cell.

Table 60.--Net aboveground tree biomass of cull and salvable dead trees on timberland by forest-type group and stand-size class, Kennebec County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	1,286.5	239.7*	.0	.0	1,526.2	2
Spruce/fir	.0	339.5**	.0	.0	339.5	5
Loblolly/shortleaf	.0	.0	.0	.0	.0	
Oak/pine	.0	18.9**	.0	.0	18.9	10
Oak/hickory	100.8**	63.8**	.0	.0	164.6	6
Elm/ash/red maple	83.5**	9.7**	.0	.0	93.2	9
Northern hardwoods	365.1*	278.2*	17.1**	.0	660.4	2
Aspen/birch	28.5**	599.1*	.0	.0	627.6	3
Total, all groups	1,864.4	1,548.9	17.1	.0	3,430.4	1
Sampling error (percent)	17	19	100	0	10.7	
	Green tons per acre[b]					
White/red pine	8.7	8.6	.0	.0	8.3	
Spruce/fir	.0	17.1	.0	.0	17.1	
Loblolly/shortleaf	.0	.0	.0	.0	.0	
Oak/pine	.0	4.7	.0	.0	4.7	
Oak/hickory	25.2	5.3	.0	.0	10.3	
Elm/ash/red maple	20.9	2.4	.0	.0	7.7	
Northern hardwoods	10.1	4.1	2.1	.0	5.9	
Aspen/birch	7.0	12.5	.0	.0	12.0	
All groups	9.5	8.4	.8	.0	8.6	

[a] Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b] Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each table cell by the estimate of timberland area for that cell.

Table 61.--Net aboveground tree biomass of cull and salvable dead trees on timberland by forest-type group and stand-size class, Knox County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
hite/red pine	355.0**	68.4**	.0	.0	423.4	46
pruce/fir	165.8*	108.6*	23.4**	.0	297.8	26
oblolly/shortleaf	.0	.0	.0	.0	.0	0
ak/pine	.0	.0	.0	.0	.0	0
ak/hickory	121.0**	30.1**	15.3**	.0	166.4	56
lm/ash/red maple	.0	.0	.0	.0	.0	0
orthern hardwoods	556.9 *	145.8**	38.0**	.0	740.7	35
spen/birch	.0	164.7**	12.4**	.0	177.1	61
Total, all groups	1,198.7	517.6	89.1	.0	1,805.4	14.5
Sampling error (percent)	22	36	48	0	14.5	
	Green tons per acre[b]					
hite/red pine	17.1	16.3	.0	.0	16.9	
pruce/fir	5.3	4.2	2.8	.0	4.6	
oblolly/shortleaf	.0	.0	.0	.0	.0	
ak/pine	.0	.0	.0	.0	.0	
ak/hickory	14.6	7.2	3.6	.0	10.0	
lm/ash/red maple	.0	.0	.0	.0	.0	
orthern hardwoods	19.1	17.6	9.0	.0	17.8	
spen/birch	.0	13.1	3.0	.0	10.5	
All groups	13.4	9.4	4.2	.0	10.9	

Sampling errors are expressed as a percent of the total and are included only for row and column otals. A single asterisk (*) by a cell value indicates that the estimate has an associated ampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has n associated sampling error greater than 50 percent, and therefore is not significantly different rom zero.

Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each able cell by the estimate of timberland area for that cell.

Table 62.--Net aboveground tree biomass of cull and salvable dead trees on timberland by forest-type group and stand-size class, Lincoln County, Maine, 1982

Forest-type group	Stand-size class				All classes	Samplir error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percer
White/red pine	672.7*	185.5**	65.9**	.0	924.1	26
Spruce/fir	162.5**	112.9**	40.1*	.0	315.5	34
Loblolly/shortleaf	.0	.0	.0	.0	.0	0
Oak/pine	.0	.0	.0	.0	.0	0
Oak/hickory	423.6*	133.2**	.0	.0	556.8	39
Elm/ash/red maple	.0	156.4**	.0	.0	156.4	60
Northern hardwoods	151.4**	204.0**	28.1**	.0	383.5	45
Aspen/birch	.0	32.7**	.0	.0	32.7	100
Total, all groups	1,410.2	824.7	134.1	.0	2,369.0	12.1
Sampling error (percent)	20	28	46	0	12.1	
	Green tons per acre[b]					
White/red pine	10.3	7.9	8.6	.0	9.6	
Spruce/fir	10.6	10.0	1.7	.0	6.3	
Loblolly/shortleaf	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	18.6	17.5	.0	.0	16.2	
Elm/ash/red maple	.0	13.1	.0	.0	13.1	
Northern hardwoods	18.9	17.4	3.5	.0	13.8	
Aspen/birch	.0	8.6	.0	.0	8.6	
All groups	12.6	11.8	3.1	.0	10.6	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each table cell by the estimate of timberland area for that cell.

Table 63.--Net aboveground tree biomass of cull and salvable dead trees on timberland by forest-type group and stand-size class, Oxford County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
hite/red pine	1,652.2*	1,335.3*	.0	.0	2,987.5	22
pruce/fir	731.3*	1,053.7*	70.6**	.0	1,855.6	27
oblolly/shortleaf	.0	.0	.0	.0	.0	0
ak/pine	39.3**	.0	.0	.0	39.3	100
ak/hickory	.0	311.0**	.0	.0	311.0	63
lm/ash/red maple	.0	62.3**	.0	.0	62.3	100
orthern hardwoods	4,124.3	2,535.3	191.1**	.0	6,850.7	15
spen/birch	.0	322.0*	231.4**	.0	553.4	34
Total, all groups	6,547.1	5,619.6	493.1	.0	12,659.8	7.7
Sampling error (percent)	15	14	33	0	7.7	
	Green tons per acre[b]					
hite/red pine	9.7	11.4	.0	.0	10.4	
pruce/fir	6.9	12.4	1.6	.0	7.9	
oblolly/shortleaf	.0	.0	.0	.0	.0	
ak/pine	3.7	.0	.0	.0	3.7	
ak/hickory	.0	9.8	.0	.0	9.8	
lm/ash/red maple	.0	11.5	.0	.0	11.5	
orthern hardwoods	17.6	10.5	6.3	.0	13.5	
spen/birch	.0	3.8	7.7	.0	4.8	
All groups	12.6	9.9	4.8	.0	10.6	

Sampling errors are expressed as a percent of the total and are included only for row and column otals. A single asterisk (*) by a cell value indicates that the estimate has an associated ampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has n associated sampling error greater than 50 percent, and therefore is not significantly different rom zero.

Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each able cell by the estimate of timberland area for that cell.

Table 64.--Net aboveground tree biomass of cull and salvable dead trees on timberland by forest-type group and stand-size class, Penobscot County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	4,607.0*	1,100.1*	85.7**	.0	5,792.8	22
Spruce/fir	5,961.6	5,099.6	362.1**	.0	11,423.3	11
Loblolly/shortleaf	.0	.0	.0	.0	.0	0
Oak/pine	.0	.0	.0	.0	.0	0
Oak/hickory	.0	.0	.0	.0	.0	0
Elm/ash/red maple	204.7**	453.7**	.0	.0	658.4	62
Northern hardwoods	4,430.2	4,093.1	265.5**	.0	8,788.8	16
Aspen/birch	401.4**	1,760.1*	175.8**	.0	2,337.3	24
Total, all groups	15,604.9	12,506.6	889.1	.0	29,000.6	5.3
Sampling error (percent)	10	11	39	0	5.3	
	Green tons per acre[b]					
White/red pine	21.0	12.7	8.9	.0	18.4	
Spruce/fir	14.1	15.7	6.4	.0	14.2	
Loblolly/shortleaf	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	.0	.0	.0	.0	
Elm/ash/red maple	10.7	23.6	.0	.0	13.7	
Northern hardwoods	21.1	15.9	9.1	.0	17.4	
Aspen/birch	20.9	10.9	9.5	.0	11.7	
All groups	17.5	14.7	7.2	.0	15.5	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each table cell by the estimate of timberland area for that cell.

Table 65.--Net aboveground tree biomass of cull and salvable dead trees on timberland by forest-type group and stand-size class, Piscataquis County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	1,375.6**	200.1**	.0	.0	1,575.7	53
Spruce/fir	10,146.7	2,607.2	1,046.8*	.0	13,800.7	9
Loblolly/shortleaf	.0	.0	.0	.0	.0	0
Oak/pine	.0	.0	.0	.0	.0	0
Oak/hickory	76.1**	.0	.0	.0	76.1	100
Elm/ash/red maple	.0	123.9**	.0	.0	123.9	100
Northern hardwoods	6,493.7	2,358.9*	342.8*	.0	9,195.4	14
Aspen/birch	66.3**	431.6**	87.8**	.0	585.7	44
Total, all groups	18,158.4	5,721.7	1,477.4	.0	25,357.5	6.0
Sampling error (percent)	9	16	27	0	6.0	
	Green tons per acre[b]					
White/red pine	21.2	6.4	.0	.0	16.4	
Spruce/fir	12.5	7.1	5.8	.0	10.2	
Loblolly/shortleaf	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	7.2	.0	.0	.0	7.2	
Elm/ash/red maple	.0	11.8	.0	.0	11.8	
Northern hardwoods	16.7	11.5	5.3	.0	14.0	
Aspen/birch	6.3	8.2	2.1	.0	5.6	
All groups	14.1	8.6	5.2	.0	11.3	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each table cell by the estimate of timberland area for that cell.

Table 66.--Net aboveground tree biomass of cull and salvable dead trees on timberland by forest-type group and stand-size class, Sagadahoc County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	670.4*	75.7**	.0	.0	746.1	31
Spruce/fir	68.8**	.0	.0	.0	68.8	100
Loblolly/shortleaf	.0	.0	.0	.0	.0	0
Oak/pine	37.9**	.0	.0	.0	37.9	100
Oak/hickory	25.0**	19.8**	.0	.0	44.8	58
Elm/ash/red maple	.0	.0	.0	.0	.0	0
Northern hardwoods	455.0**	178.1**	3.0**	.0	636.1	41
Aspen/birch	.0	19.0**	.0	.0	19.0	100
Total, all groups	1,257.1	292.6	3.0	.0	1,552.7	19.6
Sampling error (percent)	26	39	100	0	19.6	
	Green tons per acre[b]					
White/red pine	16.3	5.9	.0	.0	12.9	
Spruce/fir	15.6	.0	.0	.0	15.6	
Loblolly/shortleaf	.0	.0	.0	.0	.0	
Oak/pine	7.9	.0	.0	.0	7.9	
Oak/hickory	2.7	4.4	.0	.0	3.2	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	25.4	13.5	.8	.0	18.2	
Aspen/birch	.0	4.2	.0	.0	4.2	
All groups	16.2	35.0	.2	.0	12.5	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each table cell by the estimate of timberland area for that cell.

Table 67.--Net aboveground tree biomass of cull and salvable dead trees on timberland by forest-type group and stand-size class, Somerset County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	1,123.5*	550.0*	16.6**	.0	1,690.1	33
Spruce/fir	7,634.5	3,743.2	699.3*	.0	12,077.0	10
Loblolly/shortleaf	.0	.0	.0	.0	.0	0
Oak/pine	.0	.0	.0	.0	.0	0
Oak/hickory	.0	118.9**	.0	.0	118.9	100
Elm/ash/red maple	266.2**	111.4**	.0	.0	377.6	76
Northern hardwoods	10,214.9	2,199.4*	168.7**	.0	12,583.0	13
Aspen/birch	393.2**	629.4*	.0	.0	1,022.6	36
Total, all groups	19,632.3	7,352.3	884.6	.0	27,869.2	5.6
Sampling error (percent)	9	12	35	0	5.6	
	Green tons per acre[b]					
White/red pine	13.6	7.6	.8	.0	9.6	
Spruce/fir	11.7	7.8	5.6	.0	9.6	
Loblolly/shortleaf	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	11.4	.0	.0	11.4	
Elm/ash/red maple	25.6	10.8	.0	.0	18.2	
Northern hardwoods	21.4	11.2	2.3	.0	16.8	
Aspen/birch	12.6	8.7	.0	.0	8.2	
All groups	15.6	8.8	3.7	.0	11.9	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each table cell by the estimate of timberland area for that cell.

Table 68.--Net aboveground tree biomass of cull and salvable dead trees on timberland by forest-type group and stand-size class, Waldo County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	715.4*	256.1**	18.2**	.0	989.7	32
Spruce/fir	671.0*	424.6	26.5**	.0	1,122.1	22
Loblolly/shortleaf	.0	.0	.0	.0	.0	0
Oak/pine	.0	.0	.0	.0	.0	0
Oak/hickory	62.4**	7.3**	.0	.0	69.7	90
Elm/ash/red maple	.0	215.1**	.0	.0	215.1	80
Northern hardwoods	613.1*	1,118.3*	211.5*	.0	1,942.9	20
Aspen/birch	.0	280.1*	46.7**	.0	326.8	38
Total, all groups	2,061.9	2,301.5	302.9	.0	4,666.3	9.3
Sampling error (percent)	20	16	37	0	9.3	
	Green tons per acre[b]					
White/red pine	22.0	15.9	4.4	.0	18.8	
Spruce/fir	16.6	7.0	3.3	.0	10.3	
Loblolly/shortleaf	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	15.6	1.8	.0	.0	5.8	
Elm/ash/red maple	.0	27.9	.0	.0	27.9	
Northern hardwoods	21.8	13.9	6.5	.0	13.8	
Aspen/birch	.0	8.7	6.1	.0	8.2	
All groups	19.6	11.5	5.4	.0	12.9	

[a] Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b] Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each table cell by the estimate of timberland area for that cell.

Table 69.--Net aboveground tree biomass of cull and salvable dead trees on timberland by forest-type group and stand-size class, Washington County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
hite/red pine	719.6**	259.3**	.0	.0	978.9	39
pruce/fir	4,500.7	5,816.0	258.2**	.0	10,574.9	11
oblolly/shortleaf	.0	.0	.0	.0	.0	0
ak/pine	.0	.0	.0	.0	.0	0
ak/hickory	.0	10.9**	.0	.0	10.9	100
lm/ash/red maple	.0	465.4**	17.2**	.0	482.6	74
orthern hardwoods	2,122.7**	2,223.4**	245.7**	.0	4,591.8	21
spen/birch	711.6**	331.2**	66.5**	.0	1,109.3	40
Total, all groups	8,054.6	9,106.2	587.6	.0	17,748.4	6.2
Sampling error (percent)	13	13	34	0	6.2	
	Green tons per acre[b]					
hite/red pine	9.8	12.2	.0	.0	10.3	
pruce/fir	14.2	14.9	2.7	.0	13.1	
oblolly/shortleaf	.0	.0	.0	.0	.0	
ak/pine	.0	.0	.0	.0	.0	
ak/hickory	.0	1.0	.0	.0	.5	
lm/ash/red maple	.0	22.1	1.6	.0	15.0	
orthern hardwoods	18.3	16.1	3.8	.0	14.4	
spen/birch	16.9	10.3	.6	.0	6.1	
All groups	14.7	14.8	2.0	.0	12.2	

Sampling errors are expressed as a percent of the total and are included only for row and column otals. A single asterisk (*) by a cell value indicates that the estimate has an associated ampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has n associated sampling error greater than 50 percent, and therefore is not significantly different rom zero.

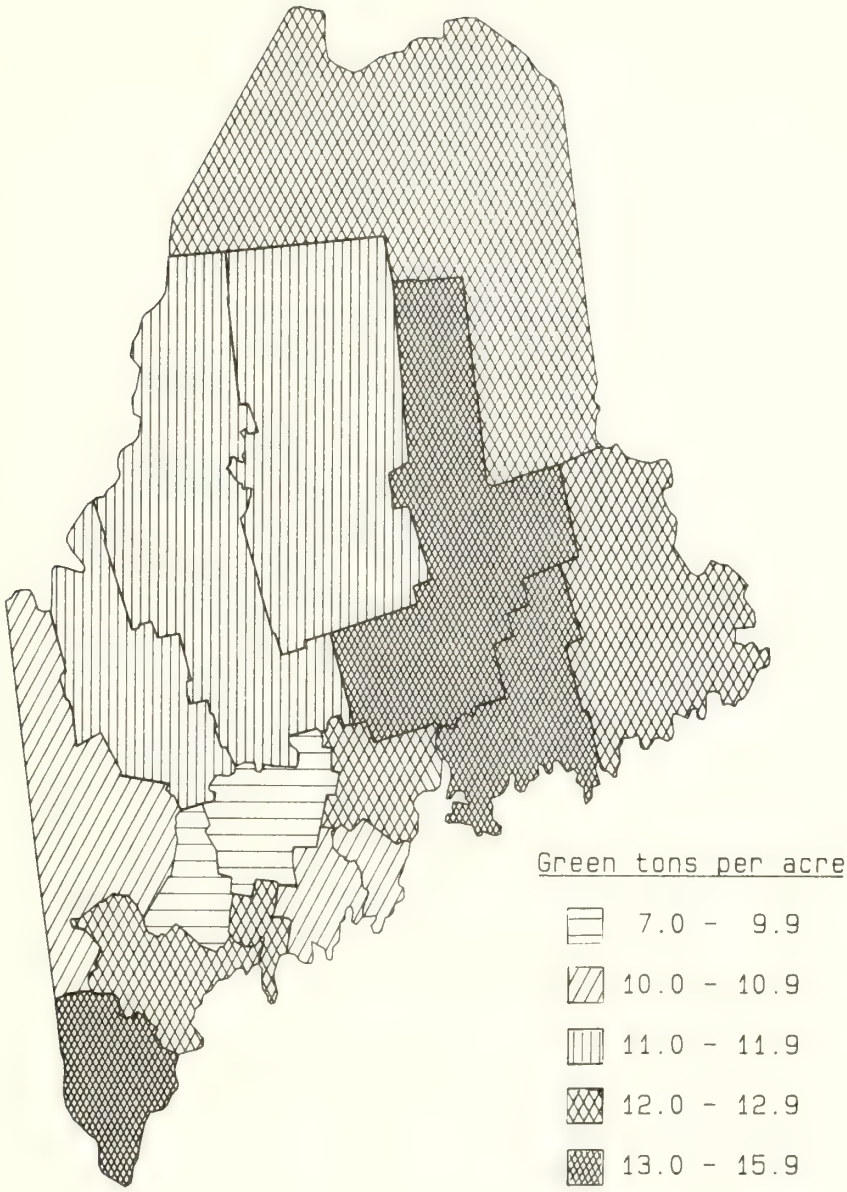
Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each able cell by the estimate of timberland area for that cell.

Table 70.--Net aboveground tree biomass of cull and salvable dead trees on timberland by forest-type group and stand-size class, York County, Maine, 1982

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	3,950.1	583.7*	138.7**	.0	4,672.5	20
Spruce/fir	40.7**	51.4**	.0	.0	92.1	71
Loblolly/shortleaf	6.4**	.0	2.0**	.0	8.4	80
Oak/pine	.0	25.6**	.0	.0	25.6	100
Oak/hickory	685.4*	230.2*	57.4**	.0	973.0	31
Elm/ash/red maple	65.2**	.0	.0	.0	65.2	100
Northern hardwoods	300.4**	927.1*	40.8**	.0	1,268.3	25
Aspen/birch	29.3**	61.5**	73.1**	.0	163.9	38
Total, all groups	5,077.5	1,879.5	312.0	.0	7,269.0	12.3
Sampling error (percent)	18	19	31	0	12.3	
	Green tons per acre[b]					
White/red pine	18.9	14.0	8.3	.0	17.5	
Spruce/fir	9.9	12.2	.0	.0	11.1	
Loblolly/shortleaf	1.5	.0	.5	.0	1.0	
Oak/pine	.0	6.1	.0	.0	6.1	
Oak/hickory	20.5	6.9	3.7	.0	11.8	
Elm/ash/red maple	17.6	.0	.0	.0	17.6	
Northern hardwoods	18.0	15.0	3.0	.0	13.8	
Aspen/birch	7.0	3.7	2.8	.0	3.5	
All groups	18.5	11.6	4.1	.0	14.2	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per-acre estimates were developed by dividing the estimate of aboveground tree biomass for each table cell by the estimate of timberland area for that cell.



Concentrations of Cull and Salvable Dead Tree Biomass on Timberland

Table 71.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland by species group and diameter group, Maine, 1982

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	277,746	28,533	1,798	308,077	167,308	475,385
Hardwoods	316,242	47,750	2,970	366,962	48,465	415,427
Total, all species	593,988	76,283	4,768	675,039	215,773	890,812
	Thousand green tons					
Softwoods	43,292.7	16,160.2	5,493.5	64,946.4	23,662.9	88,609.3
Hardwoods	61,587.1	41,850.0	7,386.2	110,823.3	10,690.3	121,513.6
Total, all species	104,879.8	58,010.2	12,879.7	175,769.7	34,353.2	210,122.9

Table 72.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland by species group and diameter group, Androscoggin County, Maine, 1982

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	1,453	33	8	1,494	458	1,952
Hardwoods	3,642	223	23	3,888	353	4,241
Total, all species	5,095	256	31	5,382	811	6,193
	Thousand green tons					
Softwoods	234.6	41.6	45.9	322.1	90.2	412.3
Hardwoods	669.6	258.4	116.1	1,044.1	67.6	1,111.7
Total, all species	904.2	300.0	162.0	1,366.2	157.8	1,524.0

Table 73.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland by species group and diameter group, Aroostook County, Maine, 1982

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	54,362	9,115	382	63,859	59,691	123,550
Hardwoods	51,056	11,563	698	63,317	11,171	74,488
Total, all species	105,418	20,678	1,080	127,176	70,862	198,038
	Thousand green tons					
Softwoods	8,614.9	3,853.4	453.9	12,922.2	8,123.8	21,046.0
Hardwoods	10,986.2	10,847.9	1,619.4	23,453.5	2,912.2	26,365.7
Total, all species	19,601.1	14,701.3	2,073.3	36,375.7	11,036.0	47,411.7

Table 74.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland by species group and diameter group, Cumberland County, Maine, 1982

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	6,149	639	144	6,932	473	7,405
Hardwoods	7,680	711	33	8,424	591	9,015
Total, all species	13,829	1,350	177	15,356	1,064	16,420
	Thousand green tons					
Softwoods	1,332.3	673.6	683.2	2,689.1	89.7	2,778.8
Hardwoods	1,329.9	723.5	108.9	2,162.3	71.9	2,234.2
Total, all species	2,662.2	1,397.1	792.1	4,851.4	161.6	5,013.0

Table 75.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland by species group and diameter group, Franklin County, Maine, 1982

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	14,753	543	48	15,344	7,412	22,756
Hardwoods	25,629	2,558	133	28,320	3,086	31,406
Total, all species	40,382	3,101	181	43,664	10,498	54,162
	Thousand green tons					
Softwoods	2,235.7	374.4	160.9	2,771.0	1,712.3	4,483.3
Hardwoods	4,427.0	1,985.9	436.6	6,849.5	618.6	7,468.1
Total, all species	6,662.7	2,360.3	597.5	9,620.5	2,330.9	11,951.4

Table 76.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland by species group and diameter group, Hancock County, Maine, 1982

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	15,003	990	46	16,039	3,633	19,672
Hardwoods	20,213	1,862	238	22,313	2,884	25,197
Total, all species	35,216	2,852	284	38,352	6,517	44,869
	Thousand green tons					
Softwoods	2,357.5	781.5	228.0	3,367.0	486.2	3,853.2
Hardwoods	3,880.2	1,800.3	589.3	6,269.8	371.5	6,641.3
Total, all species	6,237.7	2,581.8	817.3	9,636.8	857.7	10,494.5

Table 77.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland by species group and diameter group, Kennebec County, Maine, 1982

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	3,462	508	32	4,002	583	4,585
Hardwoods	7,409	749	18	8,176	830	9,006
Total, all species	10,871	1,257	50	12,178	1,413	13,591
	Thousand green tons					
Softwoods	695.0	457.5	59.1	1,211.6	114.0	1,325.6
Hardwoods	1,310.7	645.9	56.7	2,013.3	91.5	2,104.8
Total, all species	2,005.7	1,103.4	115.8	3,224.9	205.5	3,430.4

Table 78.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland by species group and diameter group, Knox County, Maine, 1982

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	1,502	179	20	1,701	220	1,921
Hardwoods	3,258	427	2	3,687	339	4,026
Total, all species	4,760	606	22	5,388	559	5,947
	Thousand green tons					
Softwoods	276.1	195.5	140.9	612.5	29.6	642.1
Hardwoods	606.0	477.0	8.8	1,091.8	71.5	1,163.3
Total, all species	882.1	672.5	149.7	1,704.3	101.1	1,805.4

Table 79.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland by species group and diameter group, Lincoln County, Maine, 1982

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	1,689	223	39	1,951	513	2,464
Hardwoods	3,755	447	51	4,253	508	4,761
Total, all species	5,444	670	90	6,204	1,021	7,225
	Thousand green tons					
Softwoods	356.6	286.0	159.0	801.6	67.5	869.1
Hardwoods	831.5	395.6	143.1	1,370.2	129.7	1,499.9
Total, all species	1,188.1	681.6	302.1	2,171.8	197.2	2,369.0

Table 80.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland by species group and diameter group, Oxford County, Maine, 1982

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	9,932	996	58	10,986	4,796	15,782
Hardwoods	29,917	3,077	266	33,260	2,577	35,837
Total, all species	39,849	4,073	324	44,246	7,373	51,619
	Thousand green tons					
Softwoods	1,528.8	862.9	312.5	2,704.2	1,080.3	3,784.5
Hardwoods	5,094.2	2,502.5	801.5	8,398.2	477.1	8,875.3
Total, all species	6,623.0	3,365.4	1,114.0	11,102.4	1,557.4	12,659.8

Table 81.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland by species group and diameter group, Penobscot County, Maine, 1982

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	44,558	3,282	218	48,058	20,027	68,085
Hardwoods	50,286	6,382	107	56,775	6,920	63,695
Total, all species	94,844	9,664	325	104,833	26,947	131,780
	Thousand green tons					
Softwoods	6,558.3	1,706.5	973.8	9,238.6	2,458.7	11,697.3
Hardwoods	10,810.3	5,103.7	243.6	16,157.6	1,145.7	17,303.3
Total, all species	17,368.6	6,810.2	1,217.4	25,396.2	3,604.4	29,000.6

Table 82.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland by species group and diameter group, Piscataquis County, Maine, 1982

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	36,418	5,085	363	41,866	30,421	72,287
Hardwoods	29,869	6,935	455	37,259	5,998	43,257
Total, all species	66,287	12,020	818	79,125	36,419	115,544
	Thousand green tons					
Softwoods	5,404.5	2,399.2	559.2	8,362.9	3,544.1	11,907.0
Hardwoods	5,889.2	5,462.2	731.0	12,082.4	1,368.1	13,450.5
Total, all species	11,293.7	7,861.4	1,290.2	20,445.3	4,912.2	25,357.5

Table 83.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland by species group and diameter group, Sagadahoc County, Maine, 1982

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	891	308	45	1,244	458	1,702
Hardwoods	1,664	270	16	1,950	215	2,165
Total, all species	2,555	578	61	3,194	673	3,867
	Thousand green tons					
Softwoods	203.4	313.6	274.1	791.1	95.2	886.3
Hardwoods	268.3	305.5	62.8	636.6	29.8	666.4
Total, all species	471.7	619.1	336.9	1,427.7	125.0	1,552.7

Table 84.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland by species group and diameter group, Somerset County, Maine, 1982

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	28,850	3,138	53	32,041	24,980	57,021
Hardwoods	37,501	7,142	687	45,330	7,801	53,131
Total, all species	66,351	10,280	740	77,371	32,781	110,152
	Thousand green tons					
Softwoods	4,579.0	1,553.5	77.1	6,209.6	3,831.9	10,041.5
Hardwoods	7,268.8	6,847.4	1,780.4	15,896.6	1,931.1	17,827.7
Total, all species	11,847.8	8,400.9	1,857.5	22,106.2	5,763.0	27,869.2

Table 85.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland by species group and diameter group, Waldo County, Maine, 1982

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	4,395	564	38	4,997	1,196	6,193
Hardwoods	9,278	1,111	55	10,444	786	11,230
Total, all species	13,673	1,675	93	15,441	1,982	17,423
	Thousand green tons					
Softwoods	744.8	512.0	135.9	1,392.7	130.3	1,523.0
Hardwoods	1,813.4	1,016.3	197.3	3,027.0	116.3	3,143.3
Total, all species	2,558.2	1,528.3	333.2	4,419.7	246.6	4,666.3

Table 86.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland by species group and diameter group, Washington County, Maine, 1982

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	46,666	1,769	88	48,523	11,658	60,181
Hardwoods	23,529	3,257	81	26,867	4,233	31,100
Total, all species	70,195	5,026	169	75,390	15,891	91,281
	Thousand green tons					
Softwoods	6,761.8	902.6	218.6	7,883.0	1,676.9	9,559.9
Hardwoods	4,210.8	2,581.8	141.3	6,933.9	1,254.6	8,188.5
Total, all species	10,972.6	3,484.4	359.9	14,816.9	2,931.5	17,748.4

Table 87.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland by species group and diameter group, York County, Maine, 1982

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	7,663	1,161	216	9,040	789	9,829
Hardwoods	11,556	1,036	107	12,699	173	12,872
Total, all species	19,219	2,197	323	21,739	962	22,701
	Thousand green tons					
Softwoods	1,409.4	1,246.4	1,011.4	3,667.2	132.2	3,799.4
Hardwoods	2,191.0	896.1	349.4	3,436.5	33.1	3,469.6
Total, all species	3,600.4	2,142.5	1,360.8	7,103.7	165.3	7,269.0

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veground tree biomass. The net green ght of wood and bark in trees veground.

mass. The quantity of material in nanic matter measured in terms of its weight.

rd foot. A unit of lumber measurement 1 foot kg, 1 foot wide, and 1 inch thick, or its ivalent.

mercial species. Tree species presently or spectively suitable for industrial wood ducts. Excludes species of typically small ze, poor form, or inferior quality such as thorn or sumac.

l trees. Rotten trees, that is, live trees ncommercial species that do not contain at lest one 12-foot sawlog or two noncontiguous 8-oot sawlogs and more than 50 percent of the tl volume is rotten; rough trees, that is, lie trees that (1) do not meet regional specifications for freedom from defect primarily because of roughness or poor form, or (2) ncommercial species.

Dameter at breast height (dbh). The diameter outside bark of a standing tree measured at 4-/2 feet above the ground on the uphill side of the tree.

Forest land. Land that is at least 10 percent stocked with trees of any size, or that formerly ha such tree cover and is not currently developed for a nonforest use. The minimum area fo classification of forest land is 1 acre.

Forest type. A classification of forest land based on the species that form a plurality of th stocking (basal area of all live trees).

Forest-type group. A combination of forest types that share closely associated species or site requirements. The many forest types in Maine were combined into the following major forest-type groups (the descriptions apply to forests in Maine):

a. White/red pine--forests in which white pine, hemlock, or red pine make up the plurality of the stocking, singly or in combination; common associates include red maple, red spruce, balsam fir, northern red oak, paper birch, and aspen.

b. Spruce/fir--forests in which red spruce, northern white-cedar, balsam fir, white spruce, black spruce, or tamarack make up the plurality of the stocking, singly or in combination; common associates include paper birch, red maple, aspen, white pine, hemlock, yellow birch, and sugar maple.

c. Loblolly/shortleaf pine-- forests in which pitch pine makes up a plurality of the stocking; gray birch is an associate of this rare type group.

d. Oak/pine--forests in which northern red oak or white ash make up a plurality of the stocking, singly or in combination, but where white pine contributes 25 to 50 percent of the stocking; common associates include beech and red spruce.

e. Oak/hickory--forests in which upland oaks, red maple (when associated with central hardwoods), or hawthorn make up a plurality of the stocking, singly or in combination, but where white pine contributes less than 25 percent of the stocking; common associates include white pine, paper birch, red spruce, beech, hemlock, and balsam fir.

f. Elm/ash/red maple--forests in which black ash, elm, red maple (when growing on wet sites), willow, or green ash make up a plurality of the stocking, singly or in combination; common associates include balsam fir, northern white-cedar, aspen, and white ash.

g. Northern hardwoods--forests in which sugar maple, beech, yellow birch, red maple (when associated with northern hardwoods), pin cherry, or black cherry make up a plurality of the stocking, singly or in combination; common associates include balsam fir, red spruce, paper birch, hemlock, white ash, aspen, and white pine.

h. Aspen/birch--forests in which aspen, paper birch, or gray birch make up a plurality of the stocking, singly or in combination; common associates include balsam fir, red maple, red spruce, white spruce, and white pine.

Green weight. The weight of wood and bark as it would be if it had been recently cut, usually expressed in pounds or tons. Net green weight equals gross weight less deductions for all unsound (rotten) material.

Growing-stock trees. Live trees of commercial species classified as either sawtimber, poletimber, saplings, or seedlings; all live trees except cull trees. While saplings and seedlings are classified as growing-stock trees, by USDA Forest Service definition, they contain no volume.

Growing-stock volume. Net volume, in cubic feet, of growing-stock trees 5.0 inches dbh and larger from a 1-foot stump height to a minimum 4.0-inch top dob of the central stem, or to the point where the central stem breaks into limbs if that occurs before it reaches this minimum diameter. Net volume equals gross volume less deduction for cull.

Hardwoods. Dicotyledonous trees, usually broad-leaved and deciduous.

International 1/4-inch rule. A log rule or formula for estimating the board-foot volume of logs. For 4-foot sections, the mathematical formula is $(0.22D^2 - 0.71D)$ (0.904762); where D=diameter inside bark at the small end of the log section. This rule is used as the USDA Forest Service standard log rule in the Eastern United States.

Merchantable stem. The main stem of the tree between a 1-foot stump height and a 4-inch top diameter (outside the bark), wood and bark.

Noncommercial species. Tree species of typically small size, poor form, or inferior quality that normally do not develop into trees suitable for industrial wood products.

Nongrowing-stock biomass. The biomass in cull trees (including noncommercial tree species), salvable dead trees, saplings, stumps between ground level and a 1-foot stump height, and the tops of growing-stock trees.

Poletimber trees. Live trees of commercial species meeting regional specifications of soundness and form and at least 5.0 inches in dbh, but smaller than sawtimber trees.

Salvable dead trees. Trees at least 5.0 inches in dbh that have recently died, but still have intact bark. The trees may be standing, fallen, windthrown, knocked down, or broken off.

Sampling error. A measure of the reliability of an estimate, expressed as a percentage of the estimate. The sampling errors given in this report correspond to one standard deviation and are calculated as the square root of the variance, divided by the estimate, and multiplied by 100.

Saplings. Live trees 1.0 inches through 4.9 inches dbh.

Sawlog portion. The part of the bole of a sawtimber tree between the stump and the point on the bole above which a sawlog cannot be produced. The minimum sawlog top is 7.0 inches dob for softwoods and 9.0 inches dob for hardwoods.

Sawtimber trees. Live trees of commercial species at least 9.0 inches dbh for softwoods or 11.0 inches for hardwoods, containing at least one 12-foot sawlog or two noncontiguous 8-foot sawlogs, and meeting regional specifications for freedom from defect.

Sawtimber volume. Net volume in board feet, by the International 1/4-inch rule, of sawlogs in sawtimber trees. Net volume equals gross volume less deductions for rot, sweep, and other defects that affect use for lumber.

Seedlings. Live trees less than 1.0-inch dbh and at least 1 foot in height.

Softwoods. Coniferous trees, usually evergre with needles or scalelike leaves.

Stand-size class. A classification of forest land based on the size class of all live tree in the area.

a. Sawtimber stand--stands of timber on forest land where (1) all live trees make up least 10 percent of the minimum full stocking (2) half or more of the stocking is made up o poletimber trees, sawtimber trees, or both; a (3) the stocking of sawtimber is at least equ to that of poletimber.

b. Poletimber stand--stands of timber o forest land where (1) all live trees make up least 10 percent of the minimum full stocking (2) half or more of the stocking is made up o poletimber trees, sawtimber trees, or both; a (3) the stocking of poletimber exceeds that o sawtimber.

c. Sapling-seedling stand--stands of timber on forest land where (1) all live tree make up at least 10 percent of the minimum fu stocking; and (2) half or more of the stockin is made up of saplings, seedlings, or both.

d. Nonstocked area--stands of timber on forest land where all live trees make up less than 10 percent of the minimum full stocking.

Stump. The main stem of a tree from ground level to 1 foot above ground level, including the wood and bark. Excludes the stump-root system below the ground.

Timberland. Forest land producing or capable producing crops of industrial wood (more than cubic feet per acre per year) and not withdraw from timber utilization. Formerly known as commercial forest land.

Top and branches. The wood and bark of a tree above the merchantable height (or above the point on the stem 4.0 inches dob). It include the uppermost stem, branches, and twigs of the tree but not the foliage.

Trees. Woody plants that have well-developed stems and are usually more than 12 feet in height at maturity.

Upper-stem portion. That part of the main ste or fork of a sawtimber tree above the sawlog t to a diameter of 4.0 inches dob, or to the point where the main stem or fork breaks into limbs.

Tree Species of Maine (as encountered on field plots)

Scientific Name[a]	Common Name(s)	Occurrence[b]
	SOFTWOODS	
Abies balsamea (L.) Mill.	balsam fir	vc
Juniperus virginiana L.	eastern redcedar	vr
Larix laricina (Du Roi) K. Koch	tamarack, eastern larch, hackmatack	c
Picea abies (L.) Karst.	Norway spruce	vr
P. glauca (Moench) Voss	white spruce	c
P. mariana (Mill.) B.S.P.	black spruce	c
P. rubens Sarg.	red spruce	vc
Pinus resinosa Ait.	red or Norway pine	r
P. rigida Mill.	pitch pine	vr
P. strobus L.	eastern white pine	c
Thuja occidentalis L.	northern white-cedar	vc
Tsuga canadensis (L.) Carr.	eastern hemlock	c
	HARDWOODS	
Acer pensylvanicum L.[c]	striped maple, moosewood	c
A. rubrum L.	red, soft, or swamp maple	vc
A. saccharinum L.	silver or soft maple	vr
A. saccharum Marsh.	sugar, rock, or hard maple	c
A. spicatum Lam.[c]	mountain maple	vr
Ailanthus altissima (Mill.) Swingle[c]	Ailanthus, tree-of-heaven	vr
Betula alleghaniensis Britton	yellow birch	c
B. lenta L.	sweet, black, or cherry birch	vr
B. papyrifera Marsh.	paper, white, or canoe birch	vc
B. populifolia Marsh.	gray birch	c
Carpinus caroliniana Walt.[c]	American hornbeam, blue-beech	vr
Carya spp. Nutt.	hickory	vr
Fagus grandifolia Ehrh.	American beech	c
Fraxinus americana L.	white ash	c
F. nigra Marsh.	black or brown ash	c
F. pennsylvanica Marsh.	green or red ash	r
Juglans cinera L.[c]	butternut	vr
Malus spp. Mill.[c]	apple	r
Nyssa sylvatica Marsh.	blackgum or black tupelo	vr
Ostrya virginiana (Mill.) K. Koch[c]	eastern hophornbeam or ironwood	r
Populus balsamifera L.	balsam poplar	r
P. grandidentata Michx.	bigtooth aspen, poplar, or popple	c
P. tremuloides Michx.	quaking or trembling aspen, popple	c
Prunus pensylvanica L.f.[c]	pin or fire cherry	r
P. serotina Ehrh.	black cherry	r
Quercus alba L.	white oak	r
Q. coccinea Muenchh.	scarlet oak	vr
Q. rubra L.	northern red oak	c
Q. velutina Lam.	black or yellow oak	r
Robinia pseudoacacia L.	black locust	vr
Salix spp. L.[c]	willow	vr
S. nigra Marsh.	black willow	vr
Tilia americana L.	American basswood	r
Ulmus americana L.	American elm	r
U. rubra Muhl.	slippery or red elm	vr

[a]Names according to: Little, Elbert L., Jr. Checklist of United States trees (native and naturalized). Agric. Handb. 541. Washington, DC: U.S. Department of Agriculture, Forest Service; 1979. 375 p.

[b]Occurrence is based on the proportion of the species among all live trees 5.0 inches dbh or larger encountered on forest survey field plots: vr = very rare (<0.05%), r = rare (0.05 to 0.49%), c = common (0.5 to 4.9%), and vc = very common (≥5.0%).

[c]Noncommercial species.

Conversions and Metric Equivalents

breast height = 1.4 m above ground level
1 inch = 2.54 cm or 0.0254 m
1 foot = 0.3048 m
1 acre = 4,046.86 m^2 or 0.4047 ha
1 board foot[a] = 0.00348 m^3
1 ft^3 = 0.02832 m^3
1 ft^3 softwoods = 0.027 green tons
1 ft^3 hardwoods = 0.033 green tons
1 ton = 2,000 pounds or 907.1848 kg
1 green ton softwoods = 9.0 million btu
1 green ton hardwoods = 8.6 million btu

[a]While 1,000 board feet is theoretically equivalent to 2.36 m^3, this is true only when a board foot is actually a piece of wood with a volume 1/12 of a ft^3. The conversion given here, 3.48 ft^3, is based on the cubic volume of a log 16 feet long and 15 inches diameter inside bark (dib) at the small end. This conversion can be used for average comparisons when an accuracy of 10 percent is acceptable.

*U.S. GOVERNMENT PRINTING OFFICE: 1985-505-028:20030

Wharton, Eric H.; Frieswyk, Thomas S.; Malley, Anne M. Aboveground tree biomass statistics for Maine: 1982. Resour. Bull. NE-86. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1985. 116 p.

A statistical report based on the third forest survey of Maine conducted in 1980-82. Results of the survey are displayed in 87 tables containing estimates of timberland area, timber volume, numbers of trees, and aboveground tree biomass. These estimates were developed by several classifications including forest type, species, and size. The data are presented at two levels: state and county.

ODC 905.1(741)

Keywords: Forest survey, inventory, area, volume, number of trees, biomass, biomass per acre, counties.

Headquarters of the Northeastern Forest Experiment Station are in Broomall, Pa. Field laboratories are maintained at:

- Amherst, Massachusetts, in cooperation with the University of Massachusetts.
- Berea, Kentucky, in cooperation with Berea College.
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- Orono, Maine, in cooperation with the University of Maine, Orono.
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- Warren, Pennsylvania.